



Flood and Water Management Act 2010

Section 19 Flood Investigation Report

**River Monnow Catchment: Storm Claudia,
November 2025**

Final

**Prepared for
Monmouthshire County
Council**

**Date
September 2026**

Document Status

Issue date	September 2026
Issued to	Monmouthshire County Council
BIM reference	RPI-JBA-XX-XX-RP-HM-0001-A1-C03- Storm_Claudia_Section_19_Flood_Investigation_Report
Revision	Final
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This report describes work commissioned by Monmouthshire County Council, by an instruction dated 17th December 2025. The Client's representative for the contract was Ross Price of Monmouthshire County Council. Polly Stradling and Faye Tomalin of JBA Consulting carried out this work.

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Abbreviations

AEP	Annual Exceedance Probability
CCTV	Closed Circuit Television
FAS	Flood Alleviation Scheme
FMfP	Flood Map for Planning
LLFA	Lead Local Flood Authority
mAOD	metres Above Ordnance Datum
MCC	Monmouthshire County Council
NFM	Natural Flood Management
NRW	Natural Resources Wales
PFR	Property Flood Resilience
SoP	Standard of Protection
TAN-15	Technical Advice Note 15: Development, Flooding and Coastal Erosion

Executive Summary

This Section 19 Flood Investigation Report has been prepared by JBA Consulting for Monmouthshire County Council (MCC), in its role as Lead Local Flood Authority (LLFA), in accordance with the Flood and Water Management Act 2010. The purpose of this investigation is to understand the causes and impacts of flooding during Storm Claudia in November 2025, identify the relevant Risk Management Authorities (RMAs), and review how their functions were exercised.

Storm Claudia affected Monmouthshire between 9th and 15th November 2025, bringing prolonged and locally intense rainfall to the River Monnow catchment. The most severe impacts occurred on 14th and 15th November, when sustained rainfall over already saturated ground conditions resulted in rapid runoff and exceptionally high river levels. The River Monnow responded quickly, reaching record or near-record levels and overtopping its banks across multiple locations.

Flooding was predominantly fluvial, with the River Monnow exceeding channel capacity and inundating adjacent floodplains. Key impacts were observed in Skenfrith, Rockfield, Forge Road, Osbaston and Monmouth Town. Local topography, property thresholds and the interaction of tributaries and ordinary watercourses influenced flood pathways and severity. In several areas, backwater effects and interactions with smaller watercourses contributed to extended flood duration. Groundwater emergence was also reported in low-lying areas due to sustained high river levels.

The event was significant in scale, with approximately 403 residential and commercial properties affected across the Study Areas of this report, including widespread internal flooding. Flood depths exceeded 1.5 m in several areas, including to commercial units along Monnow Street, Monmouth and across Skenfrith, Rockfield and Forge Road. The flooding caused substantial disruption to communities, infrastructure and services, including damage to local power supplies and key assets such as the Wonastow Road pumping station.

Flood risk management performance varied across the catchment. In Monmouth Town and at Forge Road, Osbaston formal flood defences provided partial protection but were overtopped where river levels exceeded their effective standard of protection. In contrast, where no formal defences are present at Skenfrith and Rockfield, some properties rely on Property Flood Resilience Measures, which provided little protection during an event of this magnitude.

Beyond physical impacts, the event had notable social and emotional consequences, particularly in communities affected by repeated flooding. In contrast, some areas of Monmouth perceived the event as extreme and unlikely to recur, which may reduce future preparedness.

Overall, Storm Claudia represents a severe flood event within the Monnow catchment. It highlights key vulnerabilities in flood risk management, infrastructure resilience, warning systems and community preparedness. The findings emphasise the need for a coordinated,

catchment-scale approach, supported by improved modelling, targeted local interventions, and strengthened community resilience.

1 Introduction

1.1 Purpose of S19 Flood Investigation

As a Lead Local Flood Authority (LLFA) Monmouthshire County Council (MCC) has a duty to prepare and publish the results of investigations into significant flood incidents, as detailed within Section 19 (S19) of the Flood and Water Management Act 2010 (FWMA). The Act states:

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

- a) which Risk Management Authorities (RMA) have relevant flood risk management functions and
- b) whether each of those RMAs has exercised or is proposing to exercise those functions in response to the flood”.

This report has been prepared for the purpose of meeting the LLFA S19 requirements, providing a co-ordinated, evidence-based review of the flooding that occurred during Storm Claudia on the 14th and 15th of November 2025. During this event, it was reported that approximately 270 residential properties and 140 commercial properties experienced internal flooding across Monmouthshire, with many more experiencing flooding to external areas such as gardens and outbuildings. In accordance with Welsh Government’s ‘National Strategy for Flood and Coastal Erosion Risk Management in Wales’¹, this report has been prepared as a result of more than 20 homes being affected in villages and towns across the River Monnow catchment, with a focus on Skenfrith, Rockfield, Forge Road in Osbaston and Monmouth Town.

This report sets out the circumstances of the flooding, identifies the sources and contributing factors, and determines which RMAs have relevant functions applicable to the flood event. The report aims to improve understanding, support coordinated action and identify recommendations to reduce future flood risk following the Storm Claudia event.

It is important to note, that this report is not a detailed technical flood study or design document. It does not include hydraulic modelling or scheme appraisal, does not assign legal liability, and does not provide powers to require works to be undertaken. Its recommendations are advisory, and it is focused on learning and coordination rather than delivering flood risk management interventions directly.

¹ <https://www.gov.wales/national-strategy-flood-and-coastal-erosion-risk-management-wales>

1.2 Investigation Extent

1.2.1 River Monnow catchment

The Monnow catchment is located across the Herefordshire/Monmouthshire border with the upper catchment lying predominantly within Herefordshire. It forms part of the greater River Wye basin, with the River Monnow rising in the Black Mountains, east of the Bannau Brycheiniog (Brecon Beacons) National Park boundary, and flowing south to its confluence with the River Wye at the town of Monmouth.

The catchment straddles the England-Wales border for much of its length, with tributaries draining both sides of the border landscape.

Figure 1-1 below shows an overview of the River Monnow Catchment and its geographical context.

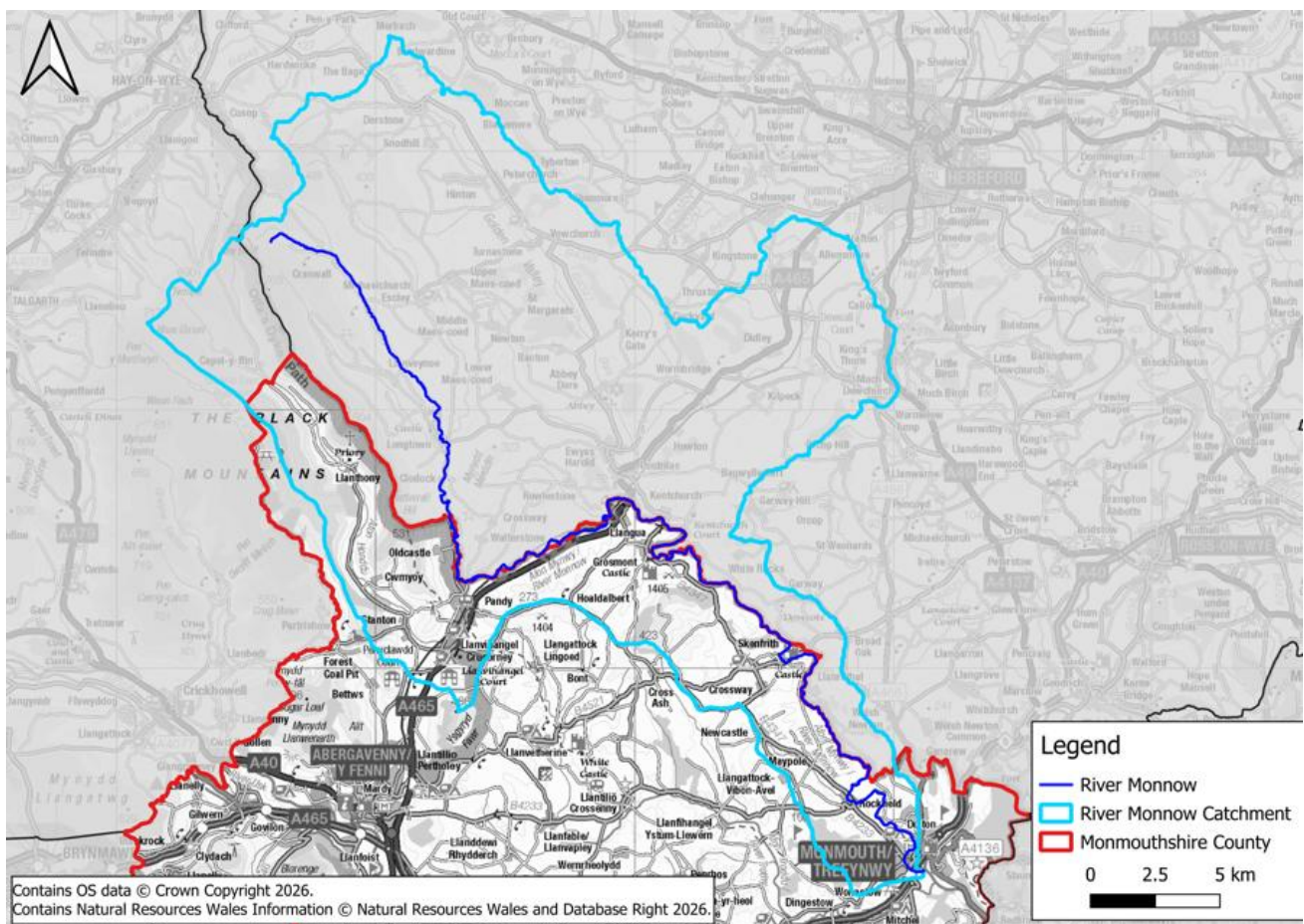


Figure 1-1 Monmouthshire Overview

1.3 Investigation areas

During the November 2025 Storm Claudia event, much of the River Monnow Catchment was impacted, resulting in flooding to hundreds of residential and commercial properties.

This report focuses on four main villages/towns within the catchment providing key Study Areas for this report: Skenfrith; Rockfield; Forge Road, Osbaston and Monmouth Town.

1.3.1 Skenfrith

Skenfrith is a village in the northeast of Monmouthshire. It's located on the western bank of the River Monnow, approximately 16km upstream of the Monnow's confluence with the River Wye at Monmouth.

Skenfrith comprises residential properties, plus commercial properties which include a village hall, church, public house/hotel, and Skenfrith Castle which dates to the early 13th century. Many buildings in the village date back several centuries with a comparatively modern development of six houses from the 1950s in the north of the village.

The drainage system in Skenfrith is complicated. There are a number of watercourses which include: the River Monnow as an NRW designated Main River, and ordinary watercourses which include the Norton Brook, and what is believed to be the remains of Mill Stream which historically powered Corn Mill by means of a now decommissioned weir adjacent to Skenfrith Castle. Additionally, there is a small stream which flows through the garden of St Bridget's Cottage, prior to being culverted along the frontage of Skenfrith castle towards Corn Mill. All ordinary watercourses discharge to the Monnow.

Upstream of Skenfrith the Monnow's catchment is approximately 395km² and is predominately rural in nature. The main tributaries of the River Monnow are the Norton Brook, Escley Brook, River Honddu and the River Dore.

The River Monnow is crossed by Skenfrith Bridge, a 3 arch stone bridge, at the downstream end of the village carrying the B4521 across the Monnow. Further east the road then continues as a causeway of approximately 300m in length across the floodplain of the Monnow and includes 2 flood relief arches.

The Norton Brook has a catchment of approximately 12.5km² with its confluence with the Monnow to the north-east of Skenfrith. To the south and west of Skenfrith are several land drainage ditches and watercourses which overflow to the village and contribute to flooding. Surface water from higher ground to the west of the village also flows overland along the roads through the village.

The River Monnow falls within the Lower Wye Internal Drainage District (IDD) managed by NRW. The boundary of the IDD also covers approximately 1km of the Norton Brook upstream of its confluence with the Monnow.

Skenfrith predominantly lies within Flood Zone 3 of the NRW Flood Map for Planning (FMfP), with some areas on the outskirts of the village located in Flood Zone 2, as shown on Figure 1-2.

Flood Zone 2 reflects a less than 1 in 100 (1%) but greater than 1 in 1000 (0.1%) chance of flooding in a given year, including climate change and Flood Zone 3 indicates a greater than 1 in 100 (1%) chance of flooding in a given year, including climate change.

Skenfrith has an extensive history of flooding, with most recent notable events in 2019, 2020, 2023, and 2024.

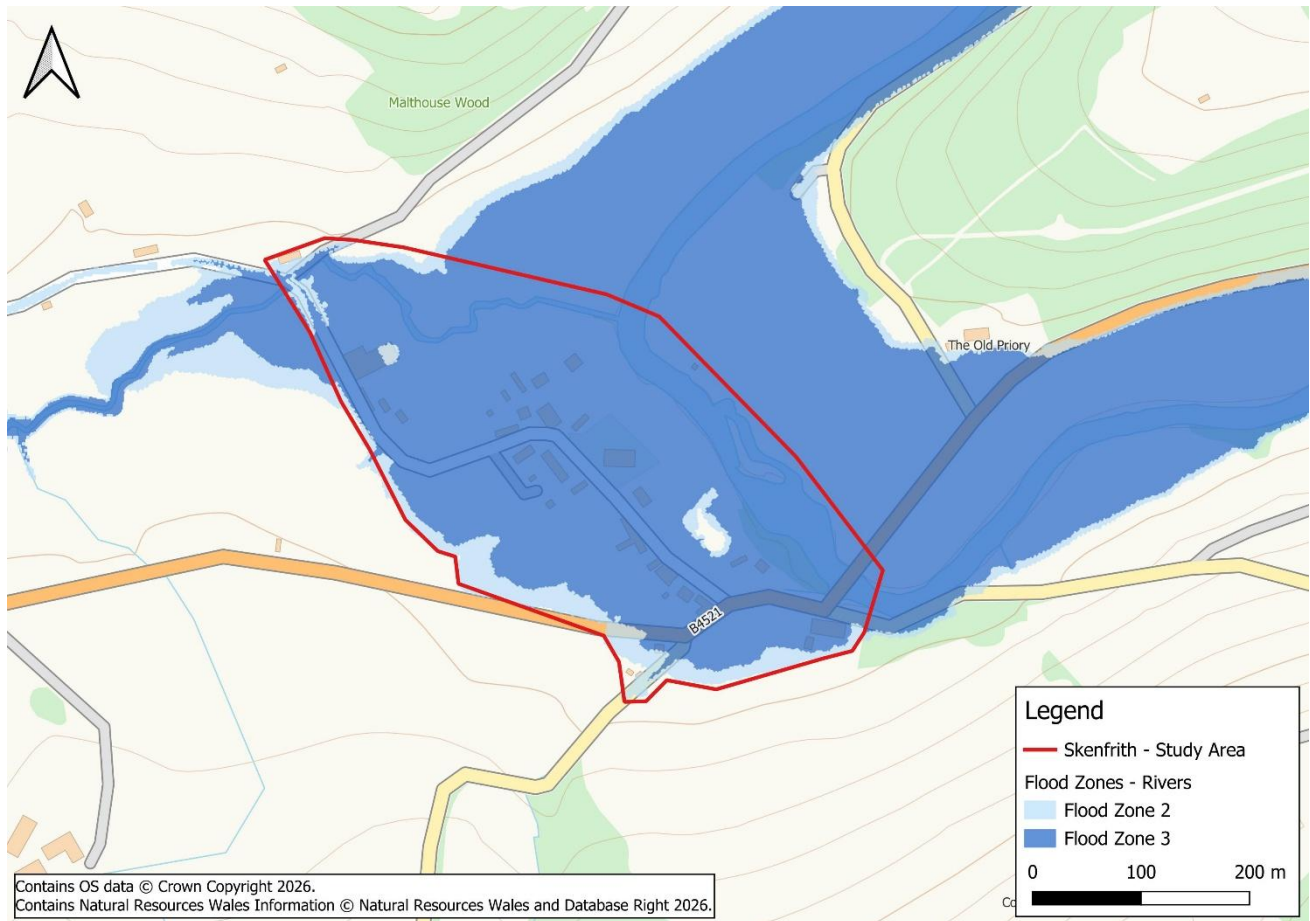


Figure 1-2 Flood Map for Planning - Flood Risk from Rivers - Skenfrith

1.3.2 Rockfield

Rockfield is a small rural settlement approximately 8km south of Skenfrith and 2km northwest of Monmouth. The bounds of the Rockfield Study Area are shown in Figure 1-3. Rockfield Study Area comprises approximately 7 residential properties, St Cenedlon Church, and one commercial property.

The area is characterised by gently undulating agricultural land that slopes toward the River Monnow. Drainage within Rockfield is predominantly rural, comprising a network of an unnamed ordinary watercourse that runs alongside St Cenedlon Church, field ditches, and overland flow pathways that convey surface water towards the Monnow. These systems respond rapidly during rainfall, particularly when ground conditions are saturated, resulting in increased runoff and localised ponding in lower-lying areas.

Parts of Rockfield lie within Flood Zone 2 and Flood Zone 3 of the FMfP, as shown on Figure 1-3.

Rockfield has experienced flooding during notable events such as November 2012 and December 2015, alongside the more recent events also experienced in Skenfrith, driven by

prolonged rainfall and elevated river levels. Flood risk in Rockfield is therefore primarily influenced by fluvial processes from the River Monnow, alongside local drainage and surface water interactions.

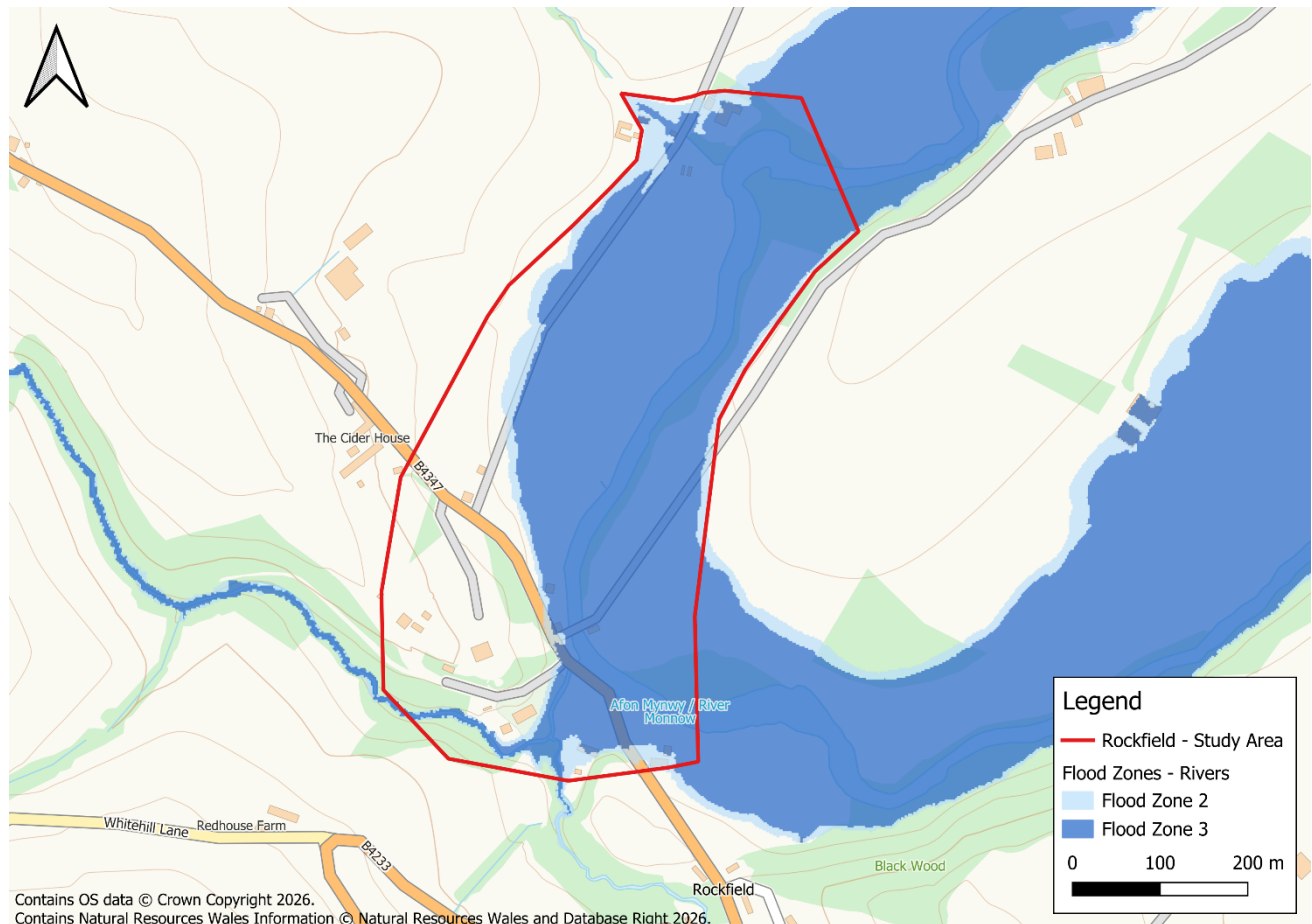


Figure 1-3 Flood Map for Planning - Flood Risk from Rivers - Rockfield

1.3.3 Forge Road, Osbaston

Forge Road is located approximately 6km southwest from Rockfield and is located within the Osbaston area of Monmouth. Osbaston forms part of a predominantly residential suburb situated on the northern side of the town. The area lies on gently sloping ground that falls toward the River Monnow, which flows immediately to the east and south, towards Monmouth Town. Within the Study Area, there are 15 residential properties, a school, a commercial property and the hydroelectric plant which is located to the west of the Study Area.

The drainage regime in the vicinity of Forge Road comprises a combination of urban drainage infrastructure, an ordinary watercourse, and overland flow routes. Surface water is generally conveyed via limited highway drainage on Osbaston Road and Forge Road directly to the River Monnow. The small ordinary watercourse that runs to the rear of Forge Cottages collects a field ditch and overland runoff before passing beneath Forge Road to the River Monnow. During periods of heavy rainfall and raised water levels in the River

Monnow, drainage infrastructure and the ordinary watercourse can become flood locked, limiting the ability to discharge and increasing localised flooding.

Figure 1-4 provides the boundary of the Study Area for this Report. Also shown are the flood zones of the FMfP - Risk from Rivers, indicating that the area is primarily located in Flood Zone 3. An NRW maintained earth embankment flood defence is also shown to the western extent of the Study Area, on the northern bank of the River Monnow. Further information on this defence is provided in Section 3.3.

Historically, Osbaston and wider Monmouth have experienced flooding linked to the River Monnow, including during significant events such as November 2012 and December 2015, when prolonged rainfall led to high river levels and inundation of adjacent areas. Other notable flood events occurred in 2019, 2020, 2023, and 2024.

Flood mechanisms in Forge Road are therefore primarily associated with fluvial flooding from the Monnow, combined with surface water and drainage exceedance within the urban catchment.

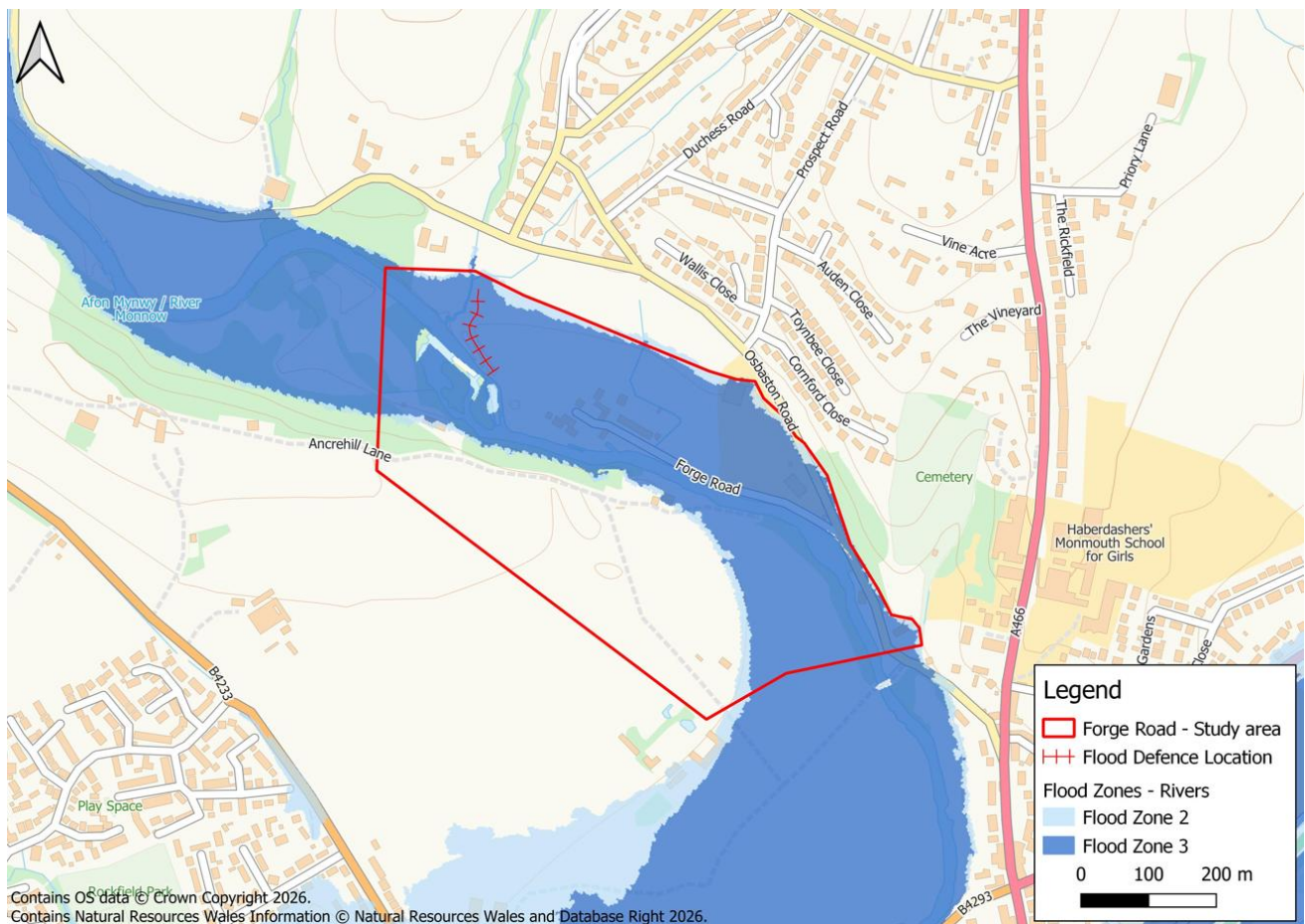


Figure 1-4 Flood Map for Planning - Flood Risk from Rivers - Forge Road, Osbaston

1.3.4 Monmouth Town

Monmouth Town is located at the confluence of the River Monnow and River Wye, approximately 1.4km south of Forge Road, Osbaston. The urban area is characterised by a mix of historic and modern development situated on relatively low-lying ground closely associated with both river corridors. The town's position at this confluence is the dominant factor influencing local drainage patterns and flood risk, with water levels in both rivers affecting conditions across the town.

Monmouth is located within Flood Zones 2 and 3 of the FMfP, as shown in Figure 1-5. The southern area of Monmouth is located within a TAN15 Defended Zone for Rivers. Under the TAN 15 classifications, a Defended Zone is an area where flood risk management infrastructure provides a minimum standard of protection against a 1% Annual Exceedance Probability (AEP) fluvial flood event.

For the purposes of this Report, Monmouth Town has been further broken down into four distinct areas namely: the East of the River Monnow, West of the River Monnow, South of the River Monnow and Watery Lane and Rockfield Road areas. A map of the areas has been illustrated in Figure 1-6.

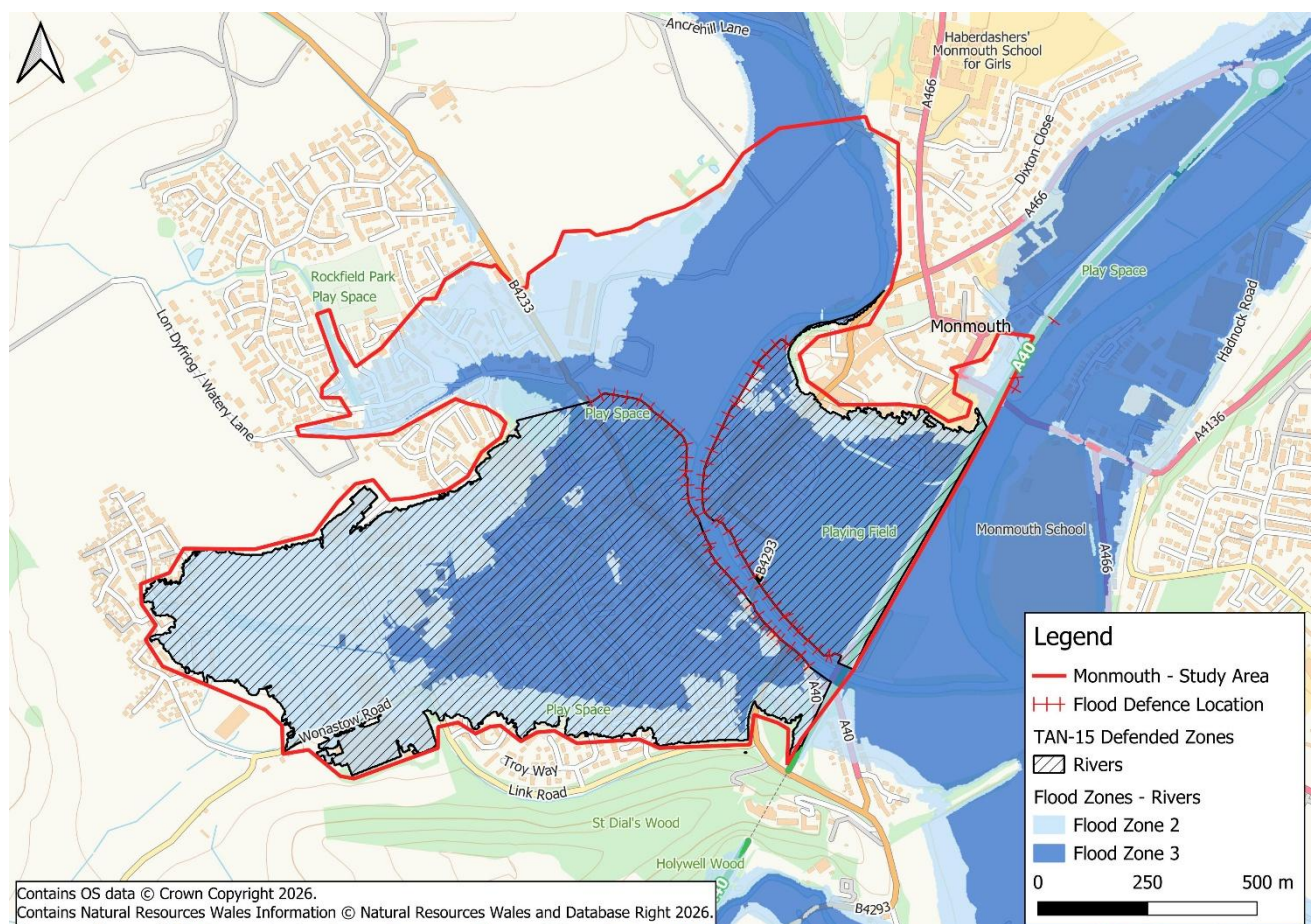


Figure 1-5 Flood Map for Planning - Flood Risk from Rivers - Monmouth Town

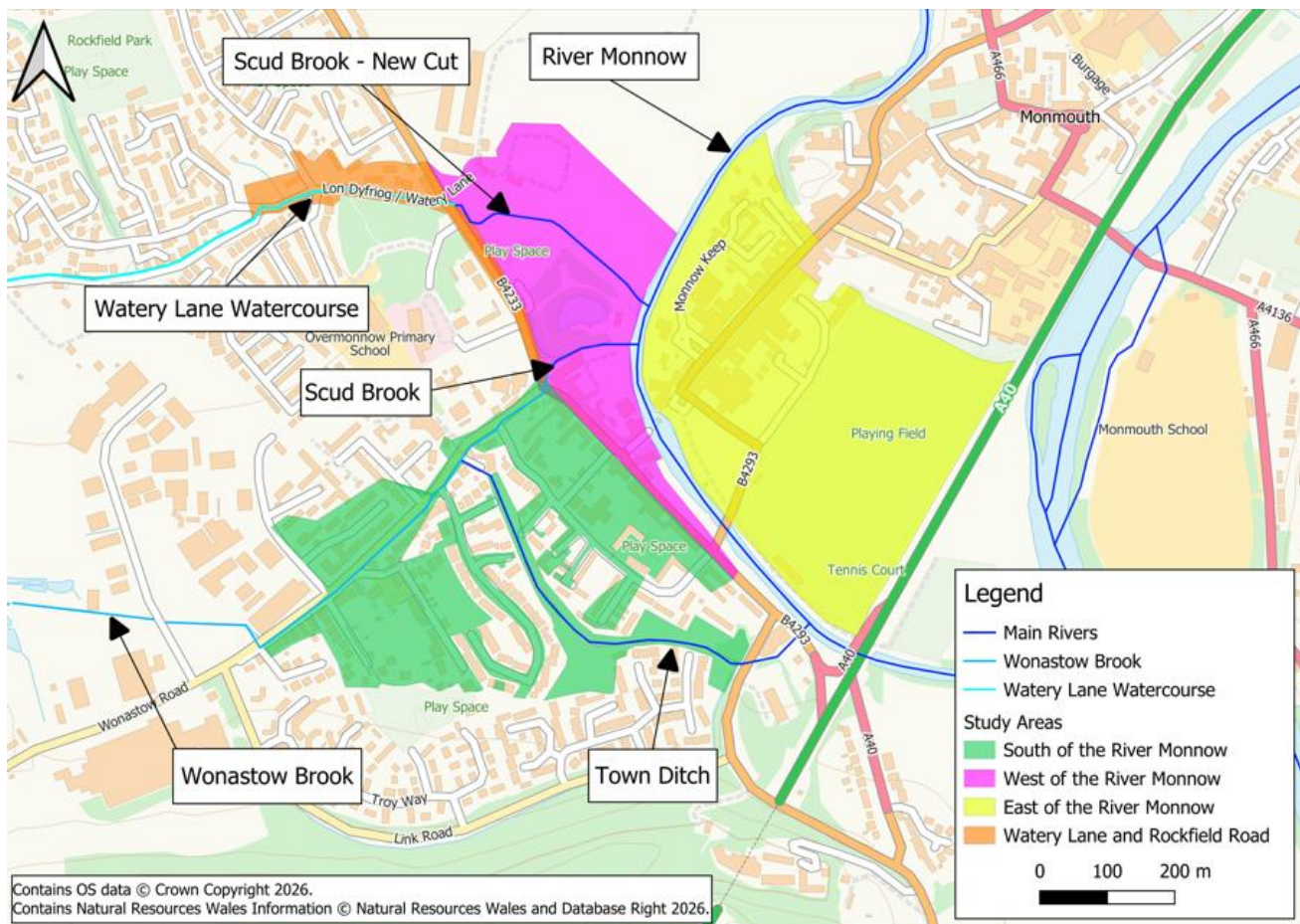


Figure 1-6 Breakdown of Monmouth Town by Study Area

East of the River Monnow (Monnow Street Area)

The East of the River Monnow area includes Monnow Street, which forms the commercial and transport core of Monmouth, located on low-lying land between and adjacent to the river corridors. Along the River Monnow, within the eastern area of Monmouth, there is approximately 0.95 km of flood defences, comprising a combination of flood walls, flood embankments and natural high ground. These defences are maintained by NRW and provide flood risk management to properties and infrastructure located alongside the river corridor.

Drainage is primarily urban, consisting of surface water sewers and highway drainage which discharge to the River Monnow and River Wye. During periods of heavy rainfall, the capacity of this system can be exceeded, resulting in surface water ponding and flow along roads, particularly in local topographic depressions.

This study area includes areas such as Monnow Keep, Nailers Lane and adjacent streets, which remain closely influenced by the Monnow corridor. Here, flood risk is primarily fluvial from the Monnow, with additional surface water flooding occurring where urban drainage systems are overwhelmed.

West of the River Monnow (Drybridge Street, Cinderhill Street Area)

West of the River Monnow comprises part of the historic town centre of Monmouth, including a mix of residential and commercial development, alongside areas of open floodplain land. This includes public open space, parkland and a caravan site located within the river corridor, as well as adjacent built-up areas such as Drybridge Street and Cinderhill Street. The land in this area is generally low-lying and relatively flat, forming part of the functional floodplain of the River Monnow. Sections of the river corridor are locally contained by flood defences, including embankments, which provide a degree of protection to the adjacent urban area while allowing the surrounding open land to act as flood storage during periods of high flow.

The River Monnow flows south through Monmouth before joining the River Wye immediately downstream of the Study Area and is the primary influence on flood risk within this part of the town. The Scud Brook runs along Watery Lane and is a designated Main River downstream of Rockfield Road. It drains the western upland areas and discharges into the Monnow, providing an additional hydraulic pathway into the system. A pumping station associated with Wonastow Brook is located within this area and helps manage water levels within the brook, particularly during periods when elevated water levels in the River Monnow and Scud Brook restrict gravity discharge and cause water to back up within the local drainage network.

The combination of low-lying floodplain land, local embankments and tributary inputs means that much of the open green space west of the River Monnow functions as a natural storage area during periods of elevated river levels, with historic flood events demonstrating that this area can become inundated and the Scud Brook can flood regularly when the River Monnow Levels rise and back up. Floodwaters also have the potential to flow towards adjacent developed areas where defence levels or channel capacity are exceeded.

South of the River Monnow (Wonastow Road Area)

South of the River Monnow comprises predominantly residential development, including areas such as Wonastow Road and Victoria Estate, with limited areas of open space. Old Town Ditch, a designated Main River, flows through this area and contributes to local drainage alongside surface water runoff from surrounding catchments. In addition, the Wonastow Brook, an ordinary watercourse, flows from Scud Brook, an NRW Main River, and subsequently flows through the Wonastow Road area, forming an important component of the local drainage network. The Wonastow Brook ultimately flows into the River Monnow in the 'West of the River Monnow' area, via the overflow storage and pump station as described.

The area is influenced by a combination of fluvial processes associated with the River Monnow and local drainage inputs, including the Old Town Ditch (Clawdd-du), Wonastow Brook and surrounding surface water runoff. During periods of heavy rainfall or elevated river levels, these systems can interact, increasing the potential for water to accumulate and flow along local roads and low-lying areas, particularly where drainage capacity is

exceeded. Where water levels are elevated within both the River Monnow and Scud Brook, conveyance within Wonastow Brook can become restricted, causing water to back up within the watercourse and increasing flood risk to adjacent areas. The interaction between the River Monnow, its tributaries and local drainage network can therefore result in complex flooding mechanisms, including backwater effects and the reduced ability of local watercourses to drain effectively.

Watery Lane and Rockfield Road Area

The Watery Lane and Rockfield Road area comprises predominantly residential properties located within the western extent of Monmouth, adjacent to the River Monnow floodplain. This area has experienced repeated flooding during previous events, including significant flood incidents between 2019 and 2024. Due to its low-lying position and proximity to the River Monnow, the area is particularly susceptible to inundation during periods of elevated river levels, with floodwaters affecting both properties and surrounding infrastructure.

The Watery Lane watercourse originates in the Kingswood area and flows towards Monmouth, bifurcating at the western end of Watery Lane. The two channels subsequently rejoin at the junction of Jordan Way and Bigham Close, where the watercourse is culverted beneath Watery Lane via two culvert inlets. The culvert outfall is located to the east of the Watery Lane and Rockfield Road roundabout, where the watercourse becomes a designated Main River and this downstream reach is named Scud Brook - New Cut.

1.4 Investigation Evidence and Data

A wide range of data has been collected and assessed to inform the Section 19 investigation. This has been used to understand the mechanisms of flooding across the Monnow catchment and to establish the context of the area. This includes the following:

- **Natural Resources Wales (NRW) hydrometric data** - River level and flow data obtained from NRW gauging stations across the catchment, providing a detailed understanding of fluvial conditions before, during and after the flooding event.
- **Rainfall data** - Recorded rainfall totals and intensities from meteorological stations within and surrounding the catchment, used to assess the severity, duration and spatial distribution of the storm event.
- **Natural Resources Wales and Met Office flood Warnings data** - Information on flood alerts and warnings issued during the event (including timing, geographic coverage and escalation), helping to understand how risk was communicated to the public and RMAs.
- **LLFA and NRW post-event data collection** – Observations and information gathered by the Lead Local Flood Authority immediately following the event, including records of flooding locations, impacts on properties and infrastructure, and initial assessments of flood mechanisms.
- **Emergency Planning and Freedom of Information Request (FOIs)** - Emergency Planning arrangements were supported through the collation and

review of information relating to the incident response. This included the consideration of FOI requests, which are formal requests for recorded information held by public authorities. As part of this process, FOI responses were obtained from Gwent Police, South Wales Fire and Rescue, and Severn Area Rescue Association (SARA), providing additional insight into the multi-agency response, including timelines, communications and decision-making undertaken during Storm Claudia.

- **Site visits by JBA Consulting and Monmouthshire County Council** across the Study Areas to ascertain further information on flood routing and mechanisms, impacted properties and public response to the event.
- **Social media, photographs, newspaper articles and notes from the event** - Publicly available and stakeholder-provided materials captured during the event, offering real-time evidence of flood extents, depths, timing and community response.
- **Public Engagement Survey** - Following initial site visits to the affected areas and extensive data gathering exercises by the LLFA, a public engagement survey was published to provide residents and businesses additional opportunity to share experiences and impacts of the Storm Claudia event. Opportunities to respond were initially through a door-knocking exercise, with every property that was reported to have been impacted either spoken to on engagement visits or receiving a letter directing to an online survey which could be completed independently. A copy of the survey is contained in Appendix A. 131 survey responses were received to inform this Report.
- **Flood grant applications** - Data submitted by affected residents and businesses applying for recovery funding, providing further evidence of property-level impacts and the scale of damage experienced.
- **Infrastructure information from asset owners** - Data provided by organisations such as highways authorities and water companies, including drainage network layouts, asset condition and known capacity or performance issues.
- **Site photographs** - Images taken during post-event inspections to document flood sources, pathways and receptors, supporting the validation of observed and modelled flood mechanisms.

2 Roles and Responsibilities of Risk Management Authorities

2.1 Lead Local Flood Authority

Under the FWMA 2010 (the Act), MCC has been established as the Lead Local Flood Risk Authority (LLFA) for its administrative area. NRW are the Risk Management Authority (RMA) for the River Monnow, a designated 'Main River'.

As defined in the Act, MCC is responsible for 'managing' what is termed, its 'local flood risk'. This includes the risk of flooding from ordinary watercourses, surface runoff and groundwater. Local Authorities have always had certain responsibilities in relation to ordinary watercourses, and in practice most Local Authorities take the lead in dealing with surface water flooding incidents prior to the changes contained within the Act.

The Act places statutory duties on Local Authorities in their role as LLFAs including:

- The preparation of local flood risk management strategies;
- A duty to comply with the national strategy;
- To co-operate with other authorities, including sharing data;
- A duty to investigate all flooding within its area, insofar as the LLFA consider it necessary or appropriate;
- A duty to maintain a register of structures and features likely to affect flood risk;
- A duty to contribute to sustainable development; and
- Consenting powers on ordinary watercourses.

In addition to these, each LLFA has a number of permissive powers. These are powers that allow them to undertake certain activities to manage flood risk, they are discretionary and include:

- Powers to request information;
- Powers to designate certain structures or features that affect flood or coastal erosion risk;
- The expansion of powers to undertake works to include broader risk management actions; and
- The ability to cause flooding or coastal erosion under certain conditions.

LLFA's in Wales have also taken on the role of the Sustainable Drainage Systems (SuDS) Adopting and Approving Body in relation to sustainable drainage systems as of 7 January 2019. In this role they are responsible for both approving the original design of the SuDS and adopting and maintaining the finished system in accordance with Welsh Government's National Standards for Sustainable Drainage.

The function of the LLFA during and after the Storm Claudia event included a range of 'Response' and 'Recovery' functions:

- Officers investigated the flooding and have produced this report in line with Section 19 of the FWMA 2010.
- Officers contacted residents affected by flooding to offer support and advice to assist in recovery following the event.
- Officers coordinated the response to the flooding with Emergency Services and the MCC Emergency Planning team.
- Asset information collected during the flood event has been incorporated into the LLFA Asset Register.

2.2 Natural Resources Wales

Under the Flood and Water Management Act 2010 and The Water Resources Act 1991, NRW have discretionary powers to manage the risk of flooding from Main Rivers and the sea. They are also recognised as a coastal erosion risk management authority under the Coast Protection Act 1949.

Their strategic oversight role aims to have a Wales-wide understanding of all sources of flooding, coastal erosion and the risks associated with them, on a consistent basis across Wales to help inform the RMAs and the public.

NRW is the internal drainage board or carries out the functions of the internal drainage board, for the Internal Drainage Districts (IDDs) in Wales. It is granted powers under the Land Drainage Act 1991 to carry out works to manage the risk of flooding from ordinary watercourses and to regulate obstructions to ordinary watercourses within the IDD. Their main role is the management of water levels in ordinary watercourses in areas where there is a special need for drainage, including flooding.

NRW as the Risk Management Authority can use its permissive powers to carry out work in several ways:

- By building new flood defences and other structures such as sluices and pumping stations.
- By maintaining defences and structures once built, keeping them in good condition subsequently, and repairing or improving them if and when required.
- By maintaining Main River watercourses, removing obstructions, vegetation and silt or gravel, to keep water flowing and remove significant flooding risks.

Areas of Skenfrith, Rockfield, Forge Road, and Monmouth are located in the Lower Wye IDD as shown in Figure 2-1.

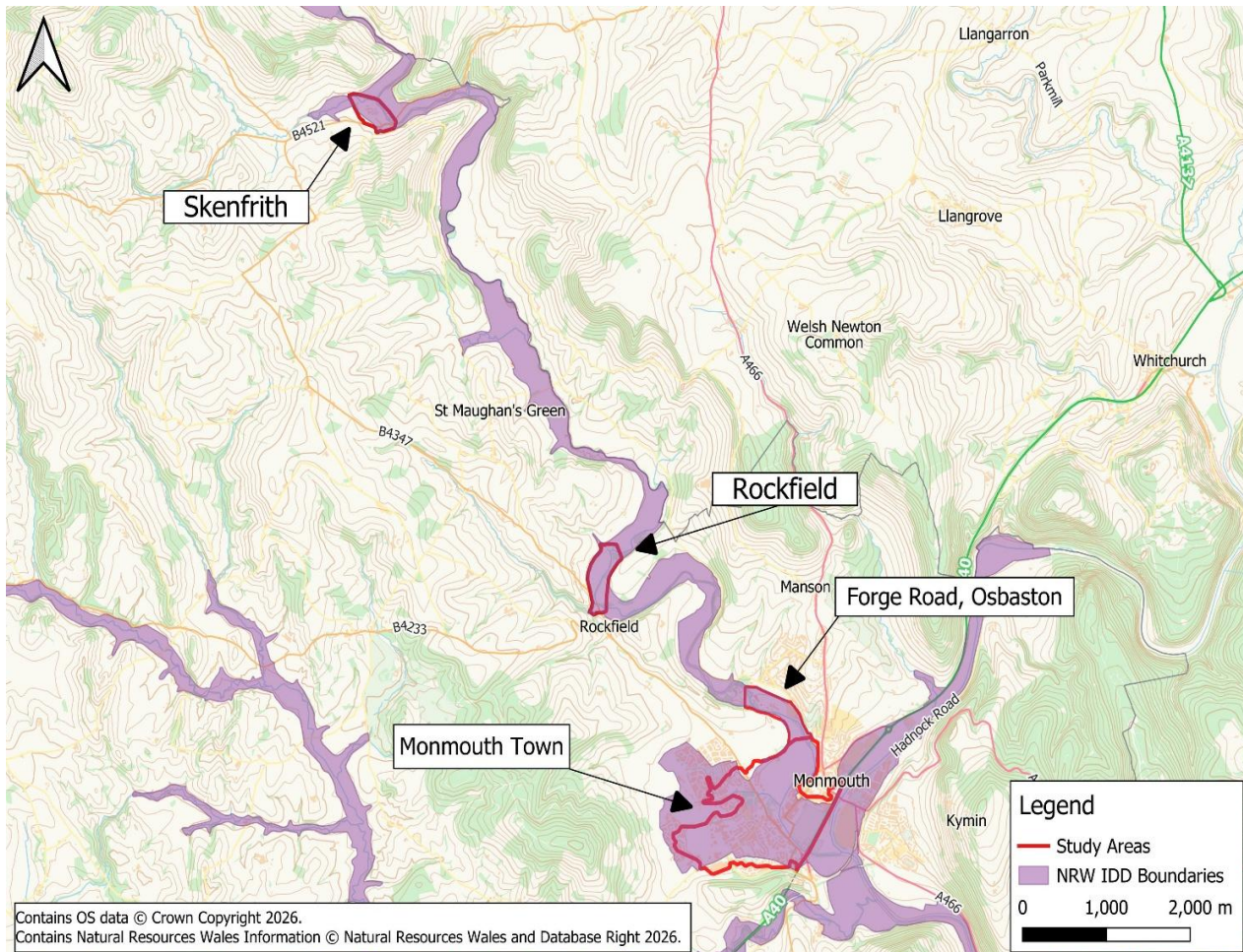


Figure 2-1 NRW IDD Boundary

2.3 Water / Sewerage Company

Sewerage undertakers are responsible for maintaining the public sewerage systems, including adopted sewers carrying surface water run-off.

In flood conditions, the sewer systems can often become overloaded with a mixture of floodwater and sewage leading to overflow and flooding. Where applicable, Sewerage undertakers are responsible for the removal of surface water from impermeable surfaces through their sewerage system. Where there is frequent and severe sewer flooding, sewerage undertakers are required to address this through their capital investment plans which are regulated by Ofwat. To mitigate further flooding, water and sewerage companies have a responsibility to monitor levels, prevent overloading of the sewer systems, and maintain and repair drainage pipes as necessary.

Dŵr Cymru Welsh Water (DCWW) are the water and sewerage company covering the River Monnow catchment.

This investigation has not identified any assets or infrastructure belonging to DCWW that may have contributed to the flood event.

2.4 Highways Authority

The Highway Authority is responsible for ensuring the highway is clear of obstructions and has a drainage system that controls direct surface water falling onto the highway.

MCC is the Highways Authority for all highways in Monmouthshire, apart from Trunk Roads which are managed by the Welsh Government. Highways Authorities are also Risk Management Authorities in their own right according to the FWMA 2010 and must adhere to all the responsibilities of Risk Management Authorities. Under the Highways Act 1980, the Highways Authority has a duty to maintain the highway. This includes ensuring that highway surface water drainage systems are clear and free from blockages.

2.5 Riparian Landowners

A riparian owner is anyone who owns a property where there is a watercourse within or adjacent to the boundaries of their property. A riparian owner possesses rights over and responsibilities for the stretch of a watercourse within or adjacent to their property. A watercourse includes a river, stream or ditch.

Riparian owners, (householders and businesses) are responsible for maintaining their rivers, streams, ditches, pipes culverts and bridges. Riparian landowners are legally responsible under common law for the maintenance of the land generally up to the centreline of any watercourse adjacent to their property. This includes the maintenance of the bed, banks and any boundary features e.g. vegetated strips such as hedging, with routine clearance of debris and/or blockages.

This does not mean that the owner must remove all debris from the watercourse, but it does require the owner to maintain it as far as it does not pose a risk or 'nuisance' to a neighbour. Any works to modify the watercourse by the landowner will first require the necessary consents or permits from the relevant RMA (LLFA or NRW).

2.6 Residents and Property Owners

Residents and property owners are responsible for the maintenance and operation of drainage assets and connecting pipework falling within their ownership. They are also responsible for the protection of their own properties against flooding. Where safe to do so, they should take measures to protect themselves and their property from flooding. Residents and property owners have the right to defend their property if they do not subsequently increase the risk of flooding to other buildings and properties.

2.7 Permissive Powers of Risk Management Authorities

Natural Resources Wales has permissive powers under the Flood and Water Management Act 2010 and Water Resources Act 1991 to carry out works to manage the risk of flooding from Main Rivers. These discretionary powers include the ability to undertake works to clear watercourses, as well as developing and implementing flood alleviation schemes when justifiable. In exercising its permissive powers, NRW must consider whether intervention is

justified on economic, environmental and social grounds taking account of costs and benefits, impacts on the water environment and biodiversity, wider community benefits and its duties under the Environment Act, Well-being of Future Generations Act and other legislation and guidance.

MCC also has similar permissive powers under the Land Drainage Act 1991 on ordinary watercourses.

2.8 Network Rail

Network Rail is not identified as a Risk Management Authority under the Flood and Water Management Act 2010. However, the Welsh Government's National Strategy for Flood and Coastal Erosion Risk Management in Wales recognises that, while legislation does not impose an official flood risk management role on Network Rail, its maintenance of assets on the coast gives it a role in coastal defence.

3 Flood Alleviation Schemes / Drainage Improvements

Across the Study Areas, a range of flood defence assets are present, or the potential for flood mitigation works have been determined historically. This Section of the report outlines any defences or mitigation measures that are present, or investigations into the potential for a Flood Alleviation Scheme that have been undertaken in each of the Study Areas.

3.1 Skenfrith

There are currently no formal flood defences in Skenfrith

Some properties have flood barriers, but these are largely ineffective at protecting against large flood events and many residents have experienced water rising through floors within the properties.

Following four significant flood events in six years between 2019 and 2025, at the time of writing this report, NRW have recently supplied flood barriers and pumps to residential properties and are preparing a more extensive property flood resilience scheme to be delivered in 2026/27. In addition, NRW are also currently reviewing further flood mitigation options and preparing a new Business Case for a potential flood alleviation scheme at Skenfrith.

3.2 Rockfield

There are currently no formal flood defences within Rockfield.

A number of private flood risk management measures are present. At one property, a raised earth bund surrounds the dwelling, although the standard of protection provided by this feature is unknown.

In addition, at a separate property adjacent to the River Monnow, a raised external flood wall has been constructed which incorporates an attachable flood barrier system. The design standard and level of protection of this arrangement are also unknown, and it does not form part of any formal or maintained flood defence system.

Overall, Rockfield remains reliant on natural processes and privately maintained measures, which may not provide a consistent or assured level of protection during significant flood events.

3.3 Forge Road, Osbaston

The Environment Agency Wales (EAW) Easter Floods Report 1998² detailed proposals to defend Forge Road against flooding as part of the Monmouth Flood Alleviation Scheme,

² <https://assets.publishing.service.gov.uk/media/5a7b83f5e5274a7202e17aae/geho0807bnay-e-e.pdf>

with works to be undertaken from 1990 to 1992. However, the Floods Report continues to state that the works were deemed economically unviable and were therefore not delivered.

The report also details that relatively moderate works were carried out, including the construction of an embankment adjacent to Forge Weir which aims to mitigate the risk of flood water overspilling during low return period events. The Standard of Protection (SoP) of the embankment is recorded as 1 in 5 years, as advised by NRW. The flood embankment adjoins the hydropower scheme wall. The flood defences are designed to reduce the risk of overtopping during lower return period flood events; however, they are not intended to prevent flooding downstream of the weir, including the area adjacent to Forge Road. It is understood that the flood embankment has previously overtopped during larger return period events, as detailed in the February 2020 S19 Report prepared by MCC³.

In the absence of a full flood alleviation scheme, some property owners have implemented Property Flood Resilience (PFR) measures to help reduce flood impacts. However, these are likely to be limited to mitigating impacts to flood depths of up to 600-900mm and are therefore likely to be overwhelmed during larger return period events.

While no formal flood alleviation scheme has been delivered for the Forge Road and Osbaston area, it is understood that NRW has undertaken preliminary assessments of flood risk management options following Storm Dennis. At the time of writing, it is understood that NRW are in the process of preparing a PFR scheme for the area, with installation works programmed for Summer 2027.

3.4 Monmouth Town

3.4.1 Monmouth Town Defences

Flood risk within Monmouth is influenced by a combination of formal flood defence infrastructure and the natural function of the River Monnow floodplain. Existing defences, constructed in 1991, primarily comprise earth embankments and localised raised walls along sections of the River Monnow, particularly in proximity to the town centre and adjacent developed areas. The location of the defences, along with the asset type, is contained in Figure 3-1. These structures provide a degree of protection to parts of the urban area, whilst allowing adjacent open floodplain areas, including green space and the caravan site, to act as flood storage during periods of elevated river levels. Formal defences are managed and maintained by NRW.

NRW have advised that the existing fluvial flood defences within Monmouth Town are considered to provide a 1 in 100 year (1% AEP) standard of protection. However, flood risk in this area is currently under review, and the associated flood mapping is subject to uncertainty. In instances where water levels exceed the effective capacity of the defence

³ Storm Dennis February 2020 Forge Road S19 Report: <https://www.monmouthshire.gov.uk/app/uploads/2022/02/Forge-Road-Monmouth-S19-Report-Feb-2020-FINAL.pdf>

system in place, the resulting overtopping and inundation of areas adjacent to the watercourse can experience rapid and significant onset and impacts.

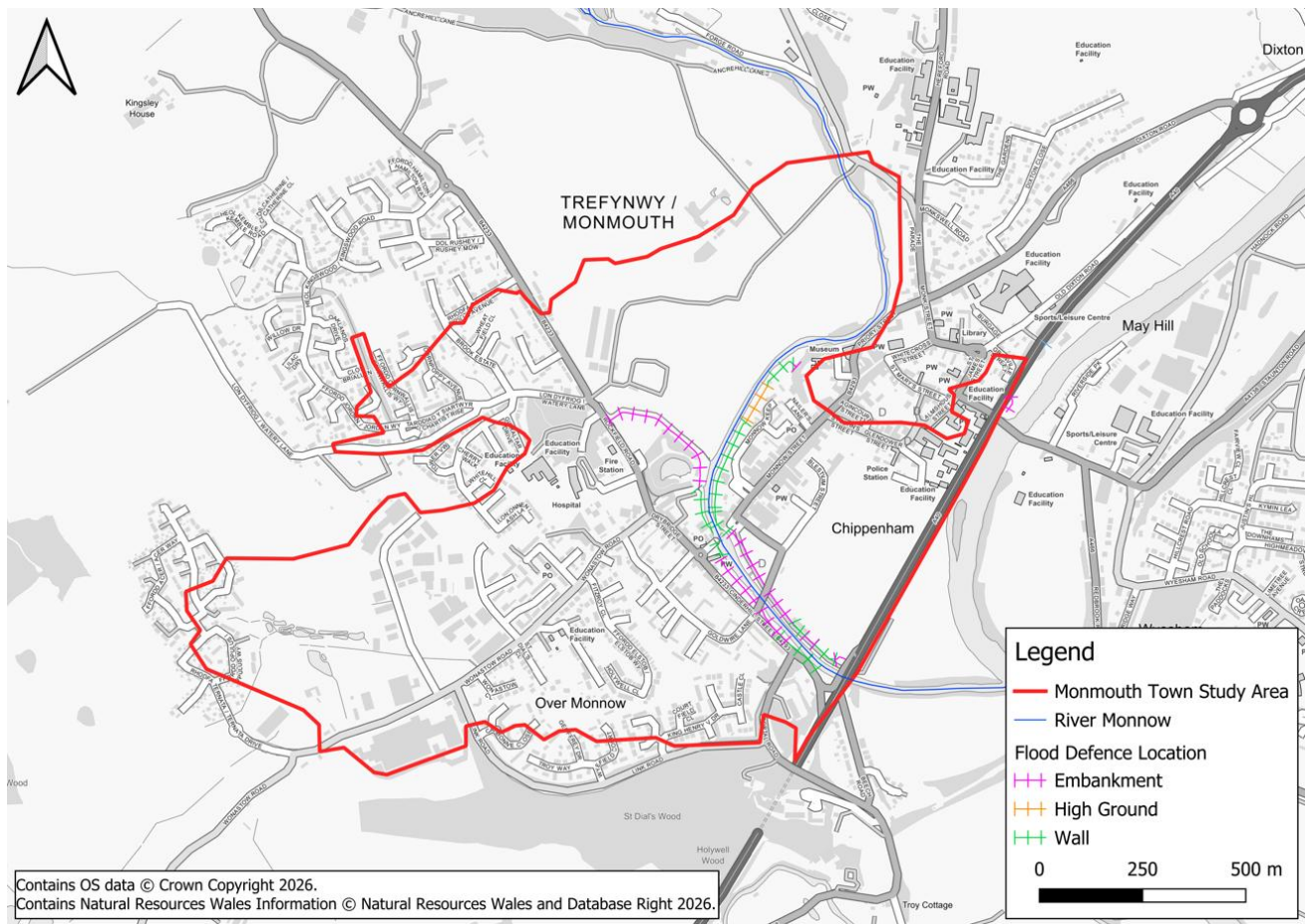


Figure 3-1 Monmouth Town Defences

3.4.2 Wonastow Road

The Wonastow Flood Alleviation Scheme was delivered by Monmouthshire County Council in July 2007. The council commissioned Atkins as lead designers and Dean and Dyball for construction of works. The scheme aims to mitigate flood risk to properties on Cinderhill Street, Drybridge Street, and Wonastow Road.

The Wonastow Brook flows towards the River Monnow, overflowing to Drybridge Community Pond when capacity within the ordinary watercourse is exceeded. Drybridge Community Pond acts as flow attenuation and flood storage in periods of high rainfall. When levels on the River Monnow result in hydraulic locking of the Wonastow Brook, a pumping station draws water from Drybridge Community Pond and pumps it over the NRW maintained embankment into the River Monnow. The pumping station is shown in Figure 3-2.

The scheme also delivered some improvements to the Wonastow Brook and provided PFR measures to a small number of houses not protected by the scheme.



Figure 3-2 Wonastow Road Flood Alleviation Scheme pumping station

3.4.3 Watery Lane and Rockfield Road Property Flood Resilience Scheme

The LLFA commissioned the provision of PFR in 2024 to seven properties in the Watery Lane area of Monmouth, following repeated flood events. These events were as a result of the ordinary watercourse becoming flood locked when the River Monnow was in spate, resulting in significant flooding at the Watery Lane / Rockfield Road junction and surrounding area.

PFR measures comprise building-level interventions that reduce the impact of flooding by either limiting water ingress (e.g. barriers, flood doors and valves) or minimising damage and enabling rapid recovery where water enters (e.g. raised services and water-resistant materials); collectively, these measures help to reduce flood damage, lower repair costs and disruption, and enable faster reoccupation, particularly in locations where traditional flood defences are not feasible. PFR measures were due to be installed in December 2025 and were therefore not present at the time of the Storm Claudia event.

4 Catchment Analysis

4.1 Flood Incident Overview

Storm Claudia (14th–15th November 2025), the third named storm of the 2025/26 season, brought a prolonged period of heavy and locally intense rainfall across England and Wales, with parts of south-east Wales receiving 50-100 mm of rainfall in a short duration and locally higher totals exceeding 100 mm. The heaviest rainfall was focused over upland areas near the Black Mountains, with the Tafalog back up gauge reading maximum rainfall of 118.4mm over a 24 hour period. This heavy rainfall led to rapid runoff and significant rises in river levels across the Monnow catchment.

In Monmouthshire, the River Monnow responded rapidly, reaching record levels and overtopping its banks, which prompted four Severe Flood Warnings over a two-day period and the declaration of a major incident in Monmouth.

Flooding was predominantly fluvial and centred on the Monnow catchment, where the river exceeded previous recorded peaks and inundated extensive areas of Monmouth and surrounding communities. Locations including Skenfrith, Rockfield, Forge Road and Monmouth experienced rapid onset flooding, with emergency services carrying out rescues and evacuations as water levels rose quickly. Across the Study Areas, internal flood depths varied considerably depending on topography and proximity to the river, typically ranging from approximately 150 mm to as much as 2.5 m in the most severely affected areas.

In total, approximately 403 properties (a combination of commercial and residential) were affected by the flooding across the Study Areas of this report, including both internal inundation and external impacts such as garden, access and outbuilding flooding. The event caused widespread disruption to infrastructure and communities and represents a significant fluvial flood incident driven by intense rainfall, rapid catchment response, and record water levels on the River Monnow.

4.2 Hydrological Analysis of the Event

The hydrological analysis of Storm Claudia shows that flooding in Monmouthshire was largely driven by a period of heavy and sustained rainfall concentrated over the Monnow catchment. Prior to the storm, the ground was already saturated from earlier rainfall, meaning it could not absorb much additional water. As a result, rainfall rapidly ran off into rivers, causing water levels to rise quickly.

Rainfall analysis indicates that while areas of the surrounding catchments (such as at the Cwmafon and Trevethin gauges) experienced relatively typical rainfall, areas to the north, within the Black Mountains (Vowchurch and Tafalog gauges), recorded much rarer totals, with an estimated likelihood of around a 1 in 200 year to 1 in 150-year event (approximately 0.5%–0.6% annual chance).

The storm itself followed an unusual easterly weather pattern, concentrating rainfall over the Black Mountains and upper Monnow catchment for many hours. This was a significant

factor, as easterly events typically generate higher rainfall totals across the Black Mountains and Monnow catchment, whereas more common westerly events tend to result in greater rainfall over the Brecon Beacons catchments. Combined with already saturated ground conditions, this intense and prolonged localised rainfall led to a rapid rise in river levels and significant flooding impacts across the communities considered within this Section 19 report.

The full hydrological report is provided in Appendix B.

The River Monnow responded particularly strongly, with flows reaching the highest levels on record at the Grosmont gauge, indicating a very significant and relatively rare flood event, estimated to be around a 1 in 50 to 1 in 75-year event (approximately 1.3%–2% annual chance). Table 4-1 provides the timing of the peak water level at the Grosmont, Skenfrith and Monnow Gate gauges.

In contrast, the River Wye experienced a more moderate and later rise in levels, with the event estimated to be more frequent (around a 1 in 2 to 1 in 5-year event), as the most intense rainfall was focused within the smaller Monnow catchment rather than across the wider Wye catchment.

Table 4-1 Gauge Readings - Peak Water Levels

Gauge	Time	Level (mAOD)
Grosmont	14/11/2025 21:30	4.836
Skenfrith	14/11/2025 23:15	5.081
Monnow Gate	15/11/2025 02:45	6.657
River Wye, Monmouth	15/11/2025 05:45	4.843

Residents from Rockfield, Forge Road and Monmouth reported a 'surge' of flood water just before the peak of the flood event on the 14th and 15th November 2025. The Monnow Gate gauge data on NRW's website shows a significant increase in water level in the 2 hours immediately prior to the defences overtopping in Monmouth. An extract of the data is shown in Table 4-2 and illustrated in Figure 4-1 below. At present, the underlying cause of this apparent surge is not fully understood and has not been definitively determined from the available data.

Whilst the Monnow Gate gauge is presented below and does demonstrate this surge in water level, it is important to highlight that more generally the Monnow Gate gauge needs to be read with caution. This is due to the interaction of the River Wye and River Monnow at this location, and the influence these rivers, in conjunction with the bridge crossings at this location, has on river levels and gauge readings. River levels at this gauge can result in differing flood risks to Monmouth Town dependent on whether the event is considered Wye-dominant or Monnow-dominant. Consequently, the gauge cannot be relied upon to monitor flood levels upstream.

Table 4-2 Monnow Gate Gauge - Surge Data

Time	Level (mAOD)	Rise (m)	Rate of rise (m)/hr
10:00	2.362	1.893	0.24
18:00	4.255		
18:00	4.255	0.59	0.12
23:00	4.845		
23:00	4.845	1.614	0.81
01:00	6.459		

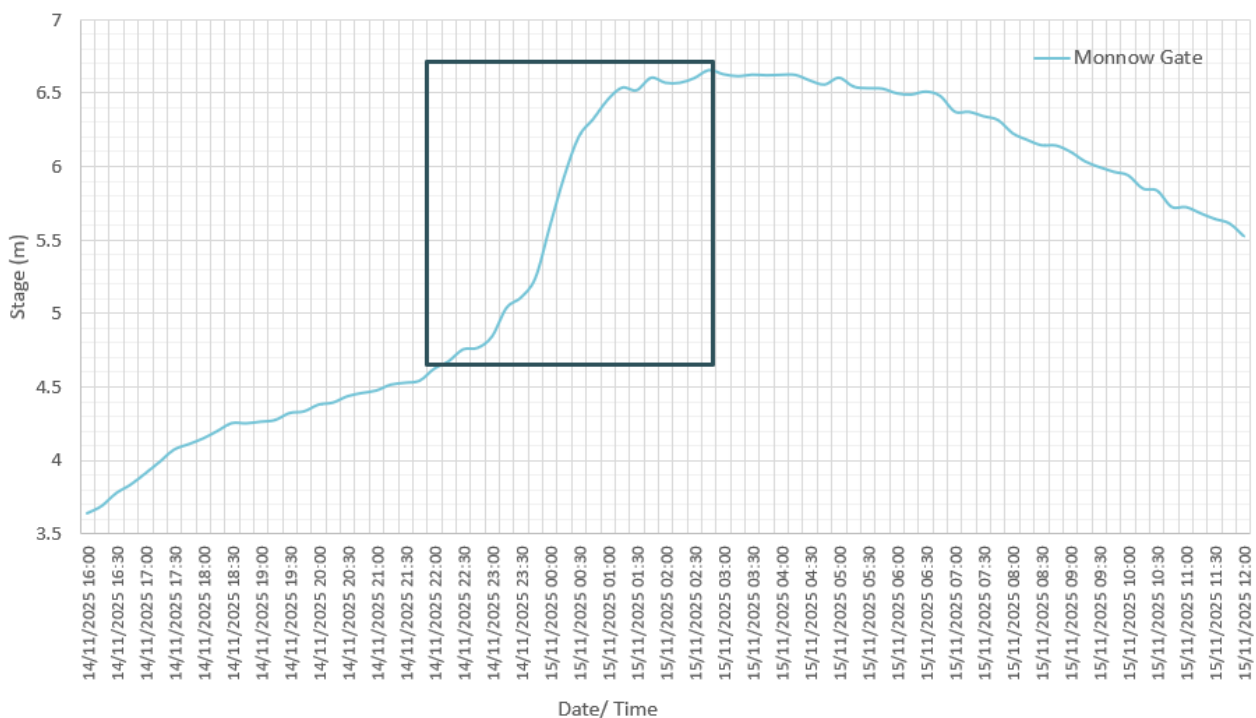


Figure 4-1 Illustrative graph displaying surge of water form Monnow Gate Gauge

4.3 Met Office Weather

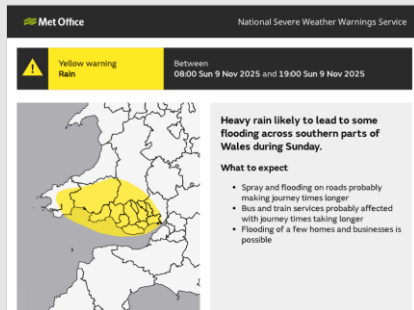
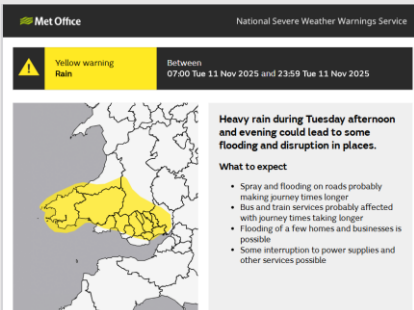
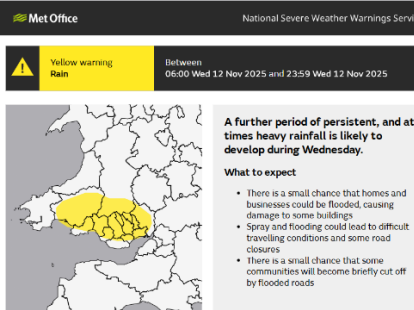
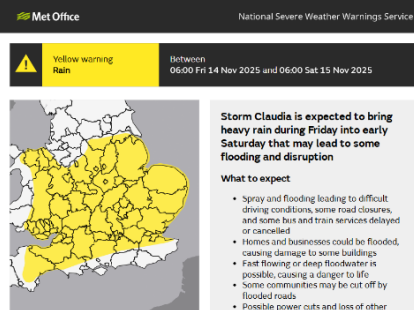
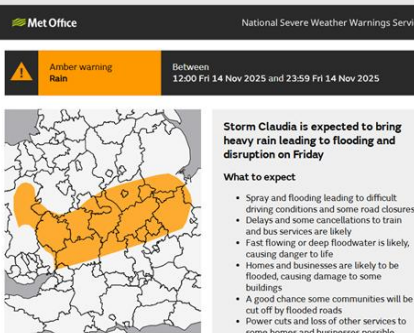
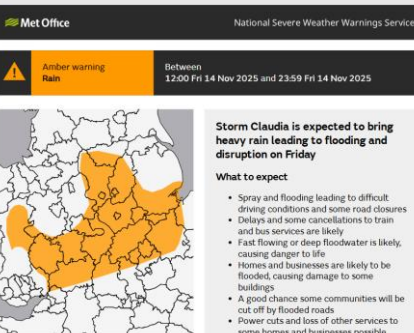
Between 9th November and 14th November 2025, the Met Office issued a sequence of weather warnings for heavy rain across Wales, as shown in Table 4-3. These warnings show how the level of risk increased over several days ahead of Storm Claudia.

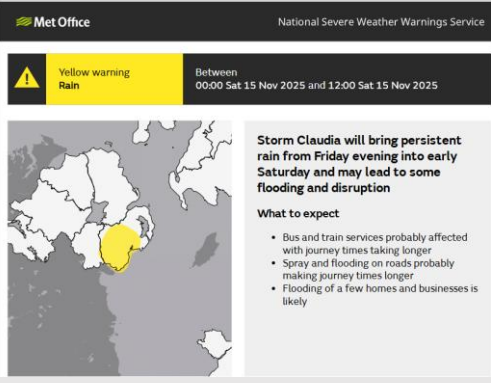
The first warning was a yellow rain warning issued on 9th November, highlighting the potential for heavy rain and some localised disruption. A further yellow warning was issued on 10th November, covering much of South Wales, including Monmouthshire. This warning covered the 11th of November (07:00 to 23:59) and advised that heavy rain could lead to surface water flooding, difficult travel conditions and possible impacts to homes and businesses.

Warnings continued across southern areas through 12th November, with increasing coverage and consistency, indicating growing confidence in prolonged rainfall. The warning issued on 12th November (and subsequently updated on 13th November) for 14th November marks a clear change, with the forecast specifically linked to Storm Claudia.

From 13th November onwards, the maps show a significant escalation, with amber warnings introduced and extending across much of Wales and parts of England, indicating a higher risk of severe impacts. By 14th November, the warning area is specifically localised across Monmouthshire for rainfall forecast that afternoon, reflecting the peak of the Storm Claudia event.

Table 4-3 Met Office Weather Warnings - 9th November-14th November 2025

Met Office Rain Warnings	
	
Issued at 04:33 Sun 9th Nov 2025	Issued at 10:46 Mon 10th Nov 2025
	
Issued at 10:39 Tue 11th Nov 2025 Updated at 10:26 Wed 12th Nov 2025	Issued at 10:29 Wed 12th Nov 2025 Updated at 10:31 Thu 13th Nov 2025
	
Issued at 10:32 Thu 13th Nov 2025	Issued at 10:32 Thu 13th Nov 2025 Updated at 10:30 Fri 14th Nov 2025

Met Office Rain Warnings	
 Amber warning Rain Between 12:00 Fri 14 Nov 2025 and 23:59 Fri 14 Nov 2025 Storm Claudia is expected to bring very heavy rain leading to flooding and disruption on Friday What to expect - Fast flowing or deep floodwater is likely, causing danger to life - Extensive flooding to homes and businesses is likely, which could lead to collapsed or damaged buildings or structures - Road closures and bus and train service delays and cancellations likely - Dangerous driving conditions because of spray and flooded roads - Power and other essential services, such as gas, water or mobile phone service, will probably be lost - There is a good chance communities in flooded areas could be completely cut off, perhaps for several days	 Yellow warning Rain Between 00:00 Sat 15 Nov 2025 and 12:00 Sat 15 Nov 2025 Storm Claudia will bring persistent rain from Friday evening into early Saturday and may lead to some flooding and disruption What to expect - Bus and train services probably affected with journey times taking longer - Spray and flooding on roads probably making journey times longer - Flooding of a few homes and businesses is likely
Issued at 10:33 Thu 13th Nov 2025 Updated at 10:29 Fri 14th Nov 2025	Issued at 10:31 Fri 14th Nov 2025

4.4 Flood Guidance Statements

The Flood Forecasting Centre Flood Guidance Statement (FGS) is a national forecasting tool produced by the Met Office, the Environment Agency and NRW to give an early indication of flood risk across England and Wales, issued to RMAs. It combines weather forecasts with current ground and river conditions to assess the likelihood and potential impact of flooding from rivers, surface water and groundwater over a five-day period. The FGS is mainly used by emergency responders and RMAs to provide a reasonable worst-case scenario to help planning and preparedness for flood events.

Between the 9th and 16th November 2025, the Flood Forecasting Centre issued a sequence of Flood Guidance Statements relating to the risk from fluvial flooding, providing two updates per day. Table 4-4 shows the series of Flood Guidance Statements that were issued between Tuesday 11th November 2025 and Sunday 16th November 2025.

Between the 11th and 12th of November 2025, there was a widespread indication of significant inland flooding across parts of England and Wales, with overall flood risk reported as low.

Between the 13th and 14th of November 2025, the FGS became more localised to Wales, and the indication was upped to severe inland flooding, with an overall flood risk reported as medium.

Between the 15th and 16th of November 2025, the FGS showed specific warnings to Monmouthshire County, showing as a Risk Area 'A' for significant and high-risk fluvial flooding.

Table 4-4 Flood Guidance Statements

Flood Guidance Statements	
Flood Guidance Statement 10:30hrs Tuesday 11 November 2025 Tuesday 11 Nov 2025 10:30hrs Forecast end of FCS: Steady → Increased ↑ Steady → Increased ↑ Significant inland flooding impacts are possible but not expected for parts of Wales on Tuesday and Wednesday. Minor surface water impacts are probable in parts of South West England on Tuesday and Wednesday. The overall flood risk is LOW. Specific Areas of Concern Map 1 - Tuesday 11 November 2025 RISK AREA A Impact: MINOR Likelihood: VERY LOW Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. RISK AREA B Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. RISK AREA C Impact: MINOR Likelihood: LOW Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. Map showing the English Channel, Irish Sea, and parts of Wales and England.	Flood Guidance Statement 10:30hrs Wednesday 12 November 2025 Wednesday 12 Nov 2025 10:30hrs Forecast end of FCS: Steady → Steady → Increased ↑ Increased ↑ Increased ↑ Significant inland flooding impacts are possible but not expected for parts of Wales on Wednesday and for parts of England and Wales on Friday and Saturday. The overall flood risk is LOW. Specific Areas of Concern Map 1 - Wednesday 12 November 2025 RISK AREA A Impact: MINOR Likelihood: VERY LOW Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. RISK AREA B Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. RISK AREA C Impact: MINOR Likelihood: LOW Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. Map showing the English Channel, Irish Sea, and parts of Wales and England.
Issued 10:30hrs Tuesday 11th November 2025	Issued 10:30hrs Wednesday 12th November 2025
Flood Guidance Statement 10:30hrs Thursday 13 November 2025 Thursday 13 Nov 2025 10:30hrs Forecast end of FCS: Increased ↑ Increased ↑ Increased ↑ Steady → Steady → Severe inland flooding impacts are possible for parts of Wales on Friday and Saturday. Significant inland flooding impacts are also probable for parts of England and Wales on Friday and Saturday. The overall flood risk is MEDIUM. Specific Areas of Concern Map 1 - Thursday 13 November 2025 RISK AREA A Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. RISK AREA B Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. RISK AREA C Impact: MINOR Likelihood: LOW Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. Map showing the English Channel, Irish Sea, and parts of Wales and England.	Flood Guidance Statement 14:30hrs Friday 14 November 2025 Friday 14 Nov 2025 14:30hrs Forecast end of FCS: Steady → Steady → Steady → Steady → Steady → Severe inland flooding impacts are probable for parts of Wales today (Friday) and Saturday. Significant inland flooding impacts are also probable for parts of England and Wales. The overall flood risk is MEDIUM. Specific Areas of Concern Map 1 - Friday 14 November RISK AREA A Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. RISK AREA B Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. RISK AREA C Impact: MINOR Likelihood: LOW Source: River Surface Likely duration: 2 Days Spills of sewage can be contained and managed. Map showing the English Channel, Irish Sea, and parts of Wales and England.
Issued 10:30hrs Thursday 13th November 2025	Issued 14:30hrs Friday 14th November 2025
Flood Guidance Statement 10:30hrs Saturday 15 November 2025 Saturday 15 Nov 2025 10:30hrs Forecast end of FCS: Increased ↓ Steady → Steady → Increased ↑ Steady → Ongoing significant river flooding impacts are expected in Monmouthshire today (Saturday) and probable elsewhere in Wales. Ongoing minor river flooding is probable for parts of England until Tuesday. The overall flood risk is MEDIUM. Specific Areas of Concern Map 1 - Saturday 15 November RISK AREA A Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 3 Days Ongoing river flooding impacts are expected in Monmouthshire today (Saturday) and probable elsewhere in Wales. RISK AREA B Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 3 Days Ongoing river flooding impacts are expected in Monmouthshire today (Saturday) and probable elsewhere in Wales. RISK AREA C Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 3 Days Ongoing river flooding impacts are expected in Monmouthshire today (Saturday) and probable elsewhere in Wales. Map showing the English Channel, Irish Sea, and parts of Wales and England.	Flood Guidance Statement 10:30hrs Sunday 16 November 2025 Sunday 16 Nov 2025 10:30hrs Forecast end of FCS: Increased ↑ Steady → Steady → Steady → Steady → Ongoing significant river flooding is expected today in Monmouthshire. Minor river flooding is probable along some major rivers until Wednesday, and possible across other parts of England today. The overall flood risk is MEDIUM. Specific Areas of Concern Map 1 - Sunday 16 November 2025 RISK AREA A Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 3 Days Ongoing river flooding impacts are expected in Monmouthshire today (Sunday) and probable elsewhere in Wales. RISK AREA B Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 3 Days Ongoing river flooding impacts are expected in Monmouthshire today (Sunday) and probable elsewhere in Wales. RISK AREA C Impact: MINOR Likelihood: MEDIUM Source: River Surface Likely duration: 3 Days Ongoing river flooding impacts are expected in Monmouthshire today (Sunday) and probable elsewhere in Wales. Map showing the English Channel, Irish Sea, and parts of Wales and England.
Issued 10:30hrs Saturday 15th November 2025	Issued 10:30hrs Sunday 16th November 2025

4.5 NRW Flood Warnings

NRW issue use flood forecasts alongside local knowledge to make decisions on issuing flood alerts and warnings to those at risk. River level data is analysed alongside weather, storm surge and wave forecasts from the Met Office to forecast flooding and the associated risk. The Flood Warning Service covers around 90% of properties at risk of flooding from Main Rivers or the sea in Wales, and considers the risk of flooding in terms of the likelihood of flooding along with the potential impact or consequences of flooding should it occur. NRW have three levels of alert or warning, which are defined in Table 4-5.

Table 4-5 NRW Flood Alert and Warning Levels

Warning Level	Definition
Flood Alert 	Be Prepared. Issued when the risk of flooding is lower but it is possible. Expect flooding of low-lying land, minor roads, car parks, recreational land and farmland. There may be spray or wave overtopping at the coast.
Flood Warning 	Immediate Action Required. Issued when flooding is expected and properties could flood. The following may also be expected: • travel on road and rail may also be impacted • significant waves and spray on coast • extensive flood plain inundation • flooding of caravan parks or campsites
Severe Flood Warning 	Danger to Life Issued when there is a significant risk to life or significant disruption to the community. They are the highest warning level and are issued when dangerous deep and fast flowing floods are expected or already happening.

A summary of the weather and flood warnings and alerts issued during the event, across Skenfrith, Forge Road, and Monmouth Town are shown in the tables below. Figure 4-2 shows the coverage of the flood warnings and alerts within the catchment.

Across all Flood Warning areas, with the exception of "River Wye at Monmouth, undefended areas", a Severe Flood Warning was issued. However, it is noted that whilst areas of Monmouth were covered by a Flood Warning for the duration of the event, the

Severe Flood Warning across Monmouth Town was not issued until 03:31, approximately 2 hours and 20 minutes after the defences within this Study Area had overtopped.

The Rockfield area is not covered by a designated NRW Flood Warning Area. As a result, residents reported a reliance on Flood Alert Area notifications, supplemented by monitoring conditions at the upstream Skenfrith Flood Warning Area on the River Monnow. Levels observed at Skenfrith are often used as an informal proxy indicator, with local understanding suggesting a lead time of several hours before elevated flows are likely to reach Rockfield.

It is important to note that the dataset used within Figure 4-2 below uses the flood warning and alert areas/naming conventions as of July 2026. During the Storm Claudia event the flood warning covering Monmouth was entitled 'River Wye at Monmouth, Defended Areas', with this naming convention utilised in the report going forwards. The name change to 'Rivers Wye and Monnow, Defended Areas' occurred after Storm Claudia, in part driven by the flooding experienced in this event. The alerts and warnings issued by NRW across the Study Areas are shown in Tables 4-6 to 4-11.

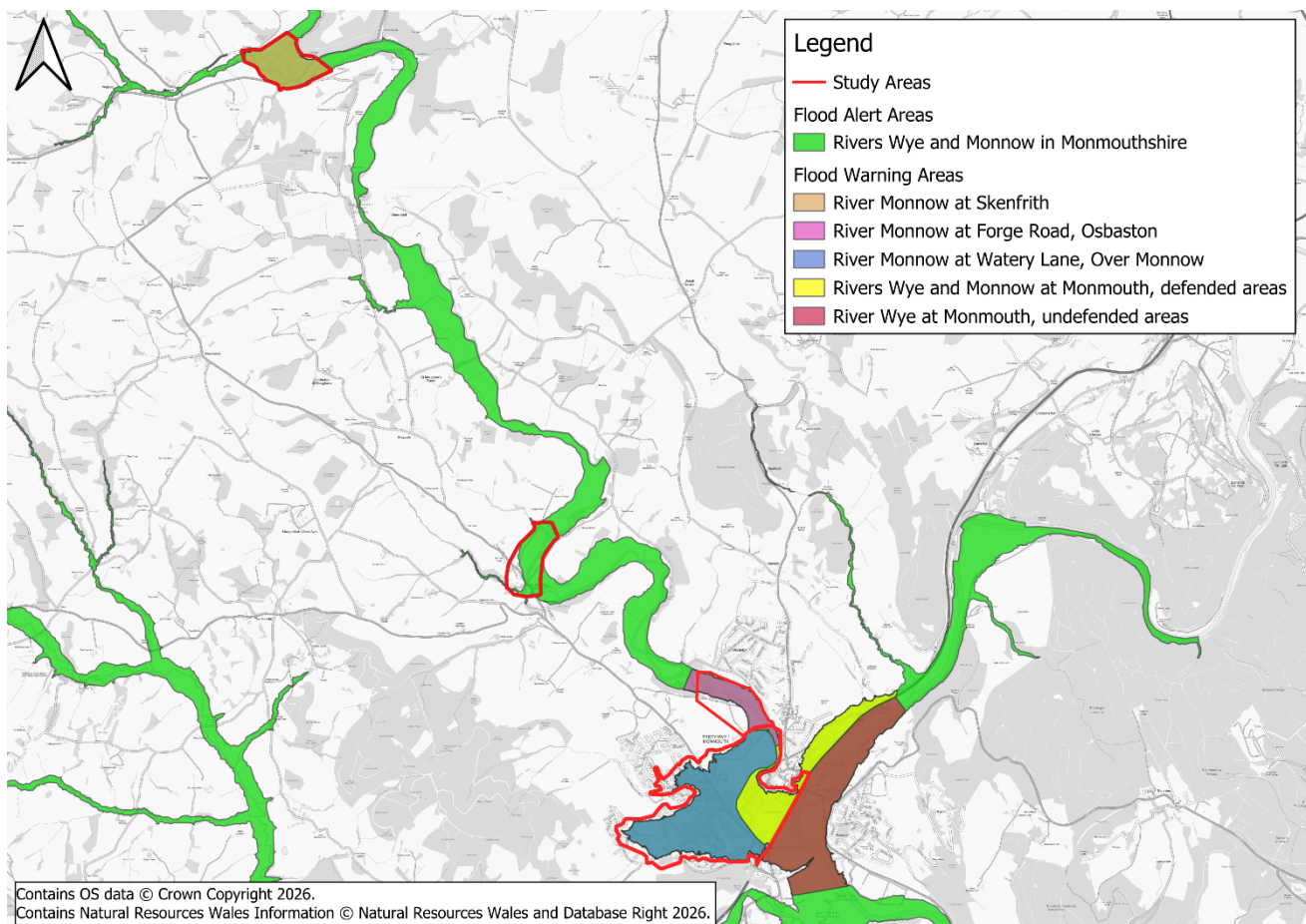


Figure 4-2 NRW Flood Warnings and Alerts Across Study Areas

Table 4-6 Flood Alerts across the County

Target Area	Date Flood Alert was issued	Time Flood Alert was issued	Date Flood Alert was removed	Time Flood Alert was removed
Rivers Wye and Monnow in Monmouthshire	13th November 2025	16:31	16th November 2025	07:05

Table 4-7 River Monnow at Skenfrith - NRW Flood Warnings

Date of Warning	Time of Warning	Type of Warning
14th November 2025	10:31	Flood Warning
	18:18	Severe Flood Warning
16th November 2025	11:38	Removal of Severe Flood Warning

Table 4-8 River Monnow at Forge Road, Osbaston - NRW Flood Warnings

Date of Warning	Time of Warning	Type of Warning
14th November 2025	10:56	Flood Warning
	18:19	Severe Flood Warning
16th November 2025	11:39	Removal of Severe Flood Warning

Table 4-9 River Monnow at Watery Lane, Over Monnow - NRW Flood Warnings

Date of Warning	Time of Warning	Type of Warning
14th November 2025	14:16	Flood Warning
15th November 2025	03:31	Severe Flood Warning
	18:52	Updated Severe Flood Warning
16th November 2025	11:40	Removal of Severe Flood Warning

Table 4-10 River Wye at Monmouth, defended areas - NRW Flood Warnings

Date of Warning	Time of Warning	Type of Warning
14th November 2025	15:51	Flood Warning
15th November 2025	03:31	Severe Flood Warning
16th November 2025	11:43	Removal of Severe Flood Warning

Table 4-11 River Wye at Monmouth, undefended areas - NRW Flood Warnings

Date of Warning	Time of Warning	Type of Warning
15th November 2025	01:35	Flood Warning
15th November 2025	17:05	Removal of Flood Warning

Of the 131 survey responses from the post engagement questionnaire, 83 respondents stated that they were signed up to the NRW Flood Warning service. 37% of respondents were therefore not signed up to the service, highlighting a notable lack of uptake across the survey set. Of these 83 respondents signed up to the service, 40 stated that they did not receive a Flood Alert or Warning in the event of Storm Claudia - a significantly high proportion (48%) of the survey set. Table 4-12 provides a breakdown by Study Area, suggesting that uptake is high across locations with a notable flood history, but uptake is lower across Monmouth Town.

It should be noted that the available survey data does not confirm whether respondents were signed up to receive NRW flood warnings prior to Storm Claudia, or whether some registered after the event. It is also unclear from the available data whether respondents who stated that they did not receive a warning were all registered to receive NRW flood warnings, or whether this response option was available to all respondents regardless of registration status. Consequently, drawing conclusions as to the effectiveness of the NRW flood warning service should be done with caution, and the scope of this Report does not extend to a full review of this service.

Table 4-12 Numbers and Percentages of Responses who received NRW Flood Alerts and Warnings - Split by Study Area

Study Area	Number of people signed up to receive NRW Flood Warnings
Skenfrith	7 out of 9 responses (78%)
Rockfield	5 out of 7 responses (71%)
Forge Road, Osbaston	9 out of 10 responses (90%)
Monmouth Town	60 out of 101 responses (59%)

4.6 Timeline of Incident Response

A chronological timeline of the incident response is presented in Figure 4-4, outlining key activities by RMA's throughout Storm Claudia, from initial notification through to recovery. The timeline provides a structured overview of the response; however, it does not represent an exhaustive record of all actions undertaken. Incident response activities were continuous and dynamic, with responding organisations operating around the clock throughout the event. As such, the timeline highlights key milestones and decisions rather than capturing every intervention.

For the purposes of this report, “recovery” is defined as the point at which the formal emergency response phase concludes and immediate lifesaving and incident management activities have ceased, transitioning to longer-term recovery and reinstatement works. It is recognised that, in practice, many members of the public and affected properties continue to experience ongoing impacts beyond this point and would not consider themselves to have fully recovered from the event.

The timeline provides a structured, chronological account of the response across the catchment, with a particular focus on the actions of RMAs and Emergency Services. The sequence of events has been informed by information provided by Emergency Response Teams and Monmouthshire County Council.

Storm Claudia impacted Monmouthshire and the wider Gwent Police area, with early indications of adverse weather conditions first issued on 10 November 2025 through Met Office weather warnings. The first formal escalation relevant to flood risk was subsequently communicated on the same day via a yellow Flood Guidance Statement (FGS), providing a clearer indication of potential impacts and informing the initial preparedness and response activities of responding organisations.

Figure 4-3 below shows the Emergency Response Team engaging with and evacuating residents in Monmouth.



Figure 4-3 Emergency Response Team speaking to and evacuating residents

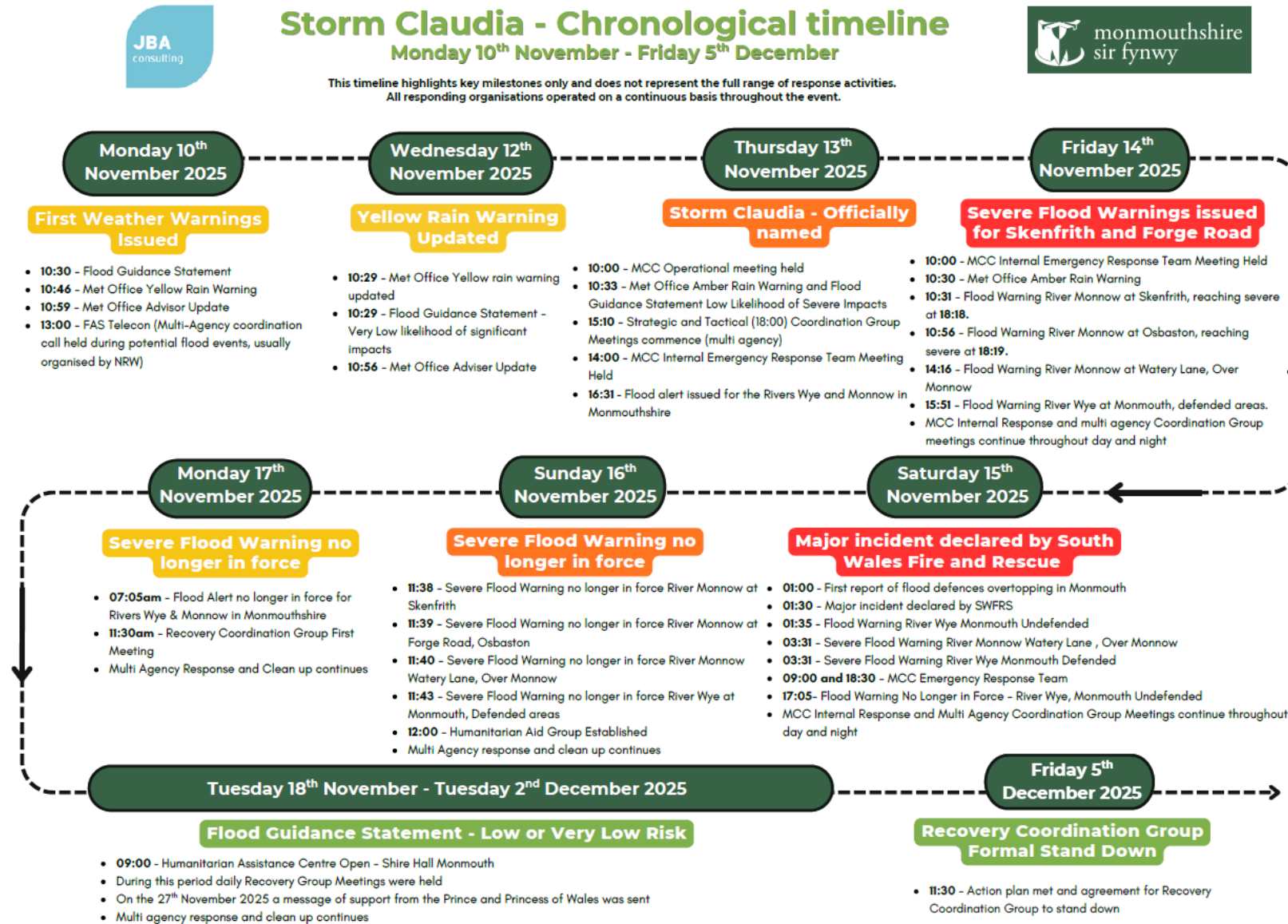


Figure 4-4 Storm Claudia - Chronological Timeline of Events

5 Flood Event Analysis: Skenfrith

5.1 Fluvial Flooding

Flooding in Skenfrith during Storm Claudia was primarily driven by fluvial exceedance of the River Monnow, with additional influence from the Norton Brook, resulting in complex and multi-directional flooding across the village. A flood mechanism and extent map for Skenfrith is attached in Appendix C.

Initial flood routing occurs near to the confluence of the Monnow and the Norton Brook, resulting from high levels on the Monnow causing water to back up in the Norton Brook channel and ultimately overtopping on the right bank with flows conveyed along Norton Road towards the centre of the village.

As river levels rose, the Monnow is understood to have overtopped its banks upstream of the castle once water reached the soffit of the central bridge arch, allowing flows to leave the channel, and merge with those from the Norton Brook.

A total of 25 properties were identified as being affected by internal flooding, with an additional 2 properties reporting external flooding for the first time. Nine responses were received through the public engagement survey, with all respondents reporting that flooding resulted from overtopping of the watercourse, indicating a predominantly fluvial source.

Flooding onset was reported between approximately 18:00 and 21:30, with river levels peaking overnight. Floodwaters generally remained within properties for several hours but were reported to have largely receded by the following morning. Internally, flood depths were significant, typically ranging from approximately 600 mm up to 1.5 m, indicating a high-magnitude event in which water levels exceeded PFR measures and, in some cases, entered through walls and floors. Residents reports that this was the largest flood event in living memory, which was confirmed by a record level of 5.08m being recorded on NRW's Skenfrith river gauge. Further information is provided in the hydrology report in Appendix B on the magnitude and scale of the event.

The impacts extended to notable buildings, including St Bridget's Church, along with first-time flooding recorded at some properties. A small number of properties on the outskirts of the village also recorded external flooding for the first time. Due to the severity of the flooding, most residents sought safe refuge on upper floors, with one household requiring assistance from emergency services. As a result of the extensive flood history within the village, emergency response is generally swift, with a well-practiced system for communicating emergency response needs between residents and emergency responders.

Flooding to the village resulted in road closures to the main road (the B4521) through Skenfrith. It was reported that some drivers attempted to ignore road closures, with these actions having the potential to endanger themselves and emergency responders. It was also reported that a 'near miss' in terms of the potential for fatalities and further increasing the severity of the incident, with a vehicle attempting to enter the village via the unnamed

highway to the east of The Bell Inn becoming stranded with young children within the vehicle. The vehicle owner waded through fast flowing flood waters to seek assistance from nearby residents, with a local farmer assisting in vehicle rescue to 'make safe' the situation.

Figures 5-1 to 5-6 provide a representation of the flood event across Skenfrith.

Overall, flooding in Skenfrith was characterised by extreme river levels, backwater effects, and combined influences from multiple watercourses, resulting in deep, prolonged and internally extensive flooding. Feedback from residents indicates a strong desire for the implementation of improved flood defences to reduce future flood risk, with some residents noting the potential detrimental impact to surface water flows and potential to impact third parties from such flood defence works which needs to be carefully considered.



Figure 5-1 Damage from internal flooding in Skenfrith



Figure 5-2 Flood Flows Resulted in Damage to Fencing



Figure 5-3 Remaining Debris on the Bridge



Figure 5-4 Evidence of Water Level to Village Hall



Figure 5-5 Evidence of Water Level on Property



Figure 5-6 Water Level to Substation

5.2 Groundwater

Historically during flooding, many residents have experienced water rising through floors within the properties. This is due to high water levels on the River Monnow. However, in this event, no reports of groundwater flooding were received on the resident survey or during data collection activities.

5.3 Tidal

This section is not applicable to this report, it is retained for consistency with other FWMA Section 19 reports prepared by MCC.

There is no tidal influence on the Monnow at Skenfrith.

5.4 Land Drainage

There is a network of land drainage ditches which channel flows in a south-easterly direction from Dry Bridge along Norton Road to Skenfrith. The network passes the north of Skenfrith before discharging to the Monnow. There is another land drainage network along Skenfrith's western perimeter behind residential properties which drains fields on higher ground west of Skenfrith. Surface water flows from the land to the south and west of Skenfrith drain towards the War Memorial, via land, roads, and drains. In times of flood this system becomes overwhelmed and contributes to flooding. The land drainage system within

Skenfrith is not designed to manage out of bank flows from the Norton Brook and River Monnow and in large flood events the capacity of the land drains is exceeded.

5.5 Surface Water Drainage

Within the centre of Skenfrith there is a limited highway surface water drainage system which drains Norton Road through the centre of the village. This drainage system also conveys flow from the land drainage ditches on the western perimeter of Skenfrith. The systems typically consist of small pipes and culverts which quickly become overwhelmed during larger flood events as they are not designed to accommodate additional volume from larger watercourses.

In times of flood, surface water from the higher ground to the south and west of the village is also channelled to Skenfrith along the roads contributing to flooding.

Whilst it is recognised that surface water flows will have contributed to the overall flood impacts within Skenfrith, surface water is not considered the main driver of flooding to the village, with this attributed to the fluvial flood flows of the River Monnow and Norton Brook.

6 Flood Event Analysis: Rockfield

6.1 Fluvial Flooding

Flooding in Rockfield during Storm Claudia was primarily driven by fluvial exceedance of the River Monnow, resulting in widespread overland flow and inundation of adjacent properties. A flood mechanism and extent map for Rockfield is contained in Appendix D.

Evidence indicates that as river levels rose, water spilled out of the riverbanks and overtopped private local defences (including bunds) and spread across the floodplain, following natural low points and property boundaries. Flood flow routing was influenced by local topography, with water entering properties from gardens, boundaries, and lower-lying upstream areas, and in some cases overtopping walls before progressing internally.

There is also some indication that backwater effects may have occurred within the adjacent small watercourse in response to elevated river levels within the Monnow. Such backing-up of the watercourse caused it to rise, overtop, and spill into the adjacent car park of St Cenedlon Church and the highway (B4233). However, St Cenedlon Church itself remained flood-free, likely due to its raised ground levels relative to the surrounding area.

As noted in Section 4.2, several residents also reported experiencing a distinct 'surge' in water levels during the event, shortly before peak flooding occurred. This rapid rise in water levels is consistent with observations across the wider catchment and reflects the dynamic response of the River Monnow during the peak of Storm Claudia.

A total of six properties were reported to have flooded, with all but one of these properties experiencing internal flooding. All reports indicate that the source of flooding was watercourse overtopping, confirming a predominantly fluvial mechanism. Flooding onset was reported between approximately 23:00 and 00:30, with most reports of floodwaters persisting for an estimated 10 to 12 hours, with some reporting 6 to 8 hours before flood waters began receding.

Flood depths varied across properties, ranging from approximately 150 mm up to 915 mm internally, although localised depths of up to 1.5 m were recorded in some properties with particularly low ground levels. Impacts varied depending on property construction and levels, with some raised or elevated buildings experiencing only external flooding, while others at lower levels experienced significant internal inundation.

The severity of the event required an emergency response, with South Wales Fire and Rescue Service in attendance. Four properties reported evacuation by boat by the Severn Area Rescue Association (SARA) and/or the Fire Service due to the depth and extent of flooding. Some residents were able to remain upstairs in their properties with no evacuation required.

Overall, flooding in Rockfield was characterised by high river levels leading to overtopping, flow routing across the floodplain, and localised deep inundation of properties, with impacts strongly influenced by ground levels and proximity to flow paths.

6.2 Groundwater

Groundwater flooding was reported in Rockfield affecting properties located adjacent to and in close proximity to the River Monnow. Elevated river levels are understood to have increased groundwater levels locally, resulting in groundwater emergence within and around properties. Several properties, particularly those with basement or lower ground floor levels, experienced flooding with reports of water rising through floors and emerging through floorboards. This indicates a strong hydraulic interaction between the river and groundwater levels, with prolonged high river levels likely driving groundwater up into the built environment in these low-lying areas.

6.3 Tidal

This section is not applicable to this report, it is retained for consistency with other FWMA Section 19 reports.

There is no tidal influence on the River Monnow at Rockfield.

6.4 Land Drainage

There is a network of land drainage ditches and ordinary watercourses within the Rockfield area which convey flows from surrounding agricultural land toward the River Monnow. This includes a small unnamed watercourse which flows through the area before discharging into the Monnow. In addition, a drainage ditch runs alongside the B4347 and adjacent smaller tracks, collecting and conveying runoff from the surrounding land. These features generally follow local topography, directing flows from higher ground toward lower-lying areas and existing watercourses.

During periods of prolonged or intense rainfall, runoff from adjacent fields increases flows within the land drainage network. In larger events, the capacity of these drainage features can be exceeded, resulting in overtopping and the movement of water along overland flow paths toward nearby properties. The land drainage system is not designed to accommodate fluvial flooding from the River Monnow, and during periods of high river levels its effectiveness is reduced.

6.5 Surface Water Drainage

Surface water drainage in Rockfield is limited and primarily consists of highway drainage systems along local roads, including gullies and connecting pipework that discharge to nearby watercourses or land drainage ditches.

These systems are designed to manage typical rainfall events and local runoff but do not have capacity to accommodate significantly elevated flows during extreme rainfall. In such conditions, surface water runoff from surrounding land is conveyed along roads and natural flow routes, contributing to the accumulation of water in lower-lying parts of the village.

Whilst surface water contributes to flooding in Rockfield, it is not considered to be the primary source, with flooding more strongly influenced by elevated levels in the River Monnow and associated watercourses.

7 Flood Event Analysis: Forge Road, Osbaston

7.1 Fluvial Flooding

Flooding along Forge Road, Osbaston during Storm Claudia was primarily the result of fluvial exceedance of the River Monnow and associated watercourses, with flow routing influenced by local topography and upstream conditions. A flood mechanism and extent map for Forge Road, Osbaston is contained in Appendix E.

Evidence indicates that flooding initially occurred along Osbaston Road as a consequence of floodwaters overtopping the River Monnow, impacting residential properties and the highway in this location. Flood flows were then conveyed towards the eastern extent of Forge Road via secondary overland flow routes with water moving across low-lying ground and along road corridors. Properties on Osbaston Road, including Osbaston Church in Wales School, therefore reported flooding earlier than properties along Forge Road.

Primary fluvial flood mechanisms to residential properties along Forge Road result in overtopping of the NRW maintained flood defence comprising the earth embankment adjacent to Forge Weir. The defence has a 1 in 5-year SoP and is designed to mitigate overtopping during smaller return period events only. It was therefore overtopped early in the event timeline for Storm Claudia. Figure 7-1 provides an indication of the flows across the earth embankment defence at this location.

Fluvial flows are then conveyed in an easterly direction towards residential properties via both Forge Road, and the existing fields surrounding the properties to the west and rear. Secondary flows result from direct overtopping of the River Monnow directly south of Forge Road. One property on the southern side of the River Monnow, adjacent to Forge Road, was also affected by internal flooding for the first time.

As noted in Section 4.2, several residents also reported experiencing a distinct 'surge' in water levels during the event, shortly before peak flooding occurred. This rapid rise in water levels is consistent with observations across the wider catchment and reflects the dynamic response of the River Monnow during the peak of Storm Claudia.

A total of 19 residential and commercial properties were identified as being impacted, with 10 property surveys returned. Of the impacted properties within the Forge Road Study Area, 16 of the 19 properties reported significant internal flooding, confirming the severity of the event. Properties reported both internal and external flooding on Forge Road, Osbaston Road and south of the River Monnow. One large commercial holiday let property on Forge Road reported external flooding for the first time, avoiding internal flooding due to the raised Finished Floor Level of the property. Figures 7-2 and 7-3 provide some representation as to the scale of damage across the Forge Road Study Area after flood waters had receded.

Flooding onset was reported between approximately 22:30 and 02:30, with water levels persisting for an estimated 10–14 hours before receding. The road remained impassable until approximately 14:00 the following day, reflecting the duration and extent of flooding.

Reported internal flood depths ranged from approximately 130 mm to 1.3 m, indicating a wide variation in severity depending on property level and proximity to flow routes. Those properties which have installed PFR measures noted that flooding overwhelmed these measures. In addition to fluvial flooding, there were reports of groundwater ingress occurring 2–3 days after the event, suggesting prolonged sub-surface saturation following peak river levels.

The flooding resulted in reported loss of power to six properties. It is therefore considered highly likely that all residential and commercial premises experienced some loss of power during the event.

The local primary schools were also affected with the Lower School shut for a period of 4 weeks. The Upper School was closed for 1 week to allow for initial repairs and drying out of the premises. Pupils from the Lower School were housed in the Upper School to provide continuous education. Whilst the Lower School opened within 4 weeks, full repair work took a further 4 months (to Easter 2026). Across both education facilities flooding resulted in extensive damage to both buildings and school grounds, including classrooms, cloakrooms and play equipment.



Figure 7-1 Flood Flows Across Earth Embankment Defence



Figure 7-2 Aftermath of Flooding within Forge Road Study Area



Figure 7-3 Damage to properties along Forge Road

Emergency response actions included regular attendance by South Wales Fire and Rescue and SARA throughout the event who assisted residents. Support was offered to assist with evacuation where required, but this was generally declined with most residents remaining upstairs in their properties for the duration of the event. There were some reports by residents that emergency evacuation was particularly difficult within the event as SARA were unable to access properties via Forge Road due to the velocity of the flood water. It is understood, however, that this had no impact on residents requesting support where required.

Of particular note is the impact of repeated flooding on residents, with neighbours coming together to assist each other during the onset of flooding and understanding the needs of others. Particularly vulnerable residents, such as those with disabilities, need additional support to prepare for flooding and to evacuate or find refuge safely.

Local feedback also highlighted concerns regarding the operation of the nearby hydroelectric plant and its potential influence on flood mechanisms and frequency. It is understood that to enable its construction the hydroelectric plant was required to obtain planning permission and appropriate construction/abstraction permits from NRW. Such processes would have resulted in the requirement for the impact of the proposals on flood risk to be considered during the approval process. There is no evidence within the scope of this investigation to confirm that the operation of the hydroelectric plant materially influenced the flood mechanisms, extent or severity during the Storm Claudia event.

In addition, local residents highlighted concerns associated with the construction of 'The Manor on Monnow' in relation to the potential impacts on the ability of the site to provide additional flood attenuation. As above, development of the site required extensive review through the planning process with an assessment of flood risk required to demonstrate the impact of the development on flood risk to third parties. There is no evidence within the scope of this investigation to confirm that the construction of the holiday rental resulted in loss of floodplain storage. However, it is considered that any potential loss of floodplain storage associated with the development is highly unlikely to result in a significant negative impact of the flood frequency, extent or impact on neighbouring properties given the scale and impact of flooding to the wider area in high magnitude events such as Storm Claudia.

Overall, flooding across the Forge Road Study Area was characterised by progressive inundation from upstream fluvial sources, complex overland flow routing, and prolonged impacts, resulting in widespread internal flooding to properties and disruption to local infrastructure.

7.2 Groundwater

Groundwater flooding was reported along Forge Road, where elevated water levels in the River Monnow led to water emerging through the ground to the front of properties and rising through floorboards within affected buildings.

While only one instance of groundwater flooding was identified through the survey, it is likely that additional occurrences have taken place but were not captured within the available records.

7.3 Tidal

This section is not applicable to this report, and has been retained for consistency with other FWMA Section 19 reports prepared by MCC.

There is no tidal influence on the River Monnow at Forge Road, Osbaston.

7.4 Land Drainage

There is an ordinary watercourse located to the north of Forge Road, to the rear of residential properties, which conveys overland runoff in an easterly direction. The watercourse runs broadly parallel to the River Monnow before turning south and discharging to the river via a culvert beneath Forge Road. The watercourse forms an important component of the local drainage network by intercepting and conveying runoff from higher ground, thereby reducing the volume of surface water flowing directly towards adjacent properties.

During periods of prolonged or intense rainfall, the capacity of the watercourse and associated culvert may influence the extent and duration of local flooding. Residents reported concerns that the watercourse is frequently obstructed by vegetation, sediment and debris, which may reduce its conveyance capacity. Where flow is restricted, runoff may be less effectively conveyed, resulting in increased ponding and overland flow across surrounding land and towards nearby properties. However, in such fluvially dominated events such as that experienced in Storm Claudia, the capacity of the watercourse is considered negligible in the context of the widespread flooding observed. Going forwards, it is recommended that the ordinary watercourse is maintained to ensure optimal capacity within lower return period events to manage local land drainage and overland flows.

7.5 Surface Water Drainage

Forge Road was inundated with flows from the River Monnow. There are minimal formal surface water drains on Forge Road with surface water draining directly to the River Monnow.

Surface water drains along Osbaston Road approximately 470m south of Forge Road have been reported to backup just before the river overtops its banks in that location.

Whilst surface water contributes to flooding in the Forge Road Study Area, it is not considered to be the primary source, with flooding more strongly influenced by elevated levels in the River Monnow.

8 Flood Event Analysis: Monmouth Town

8.1 Fluvial Flooding

This section provides an overview of fluvial flooding mechanisms affecting Monmouth Town during the Storm Claudia event. Due to the spatial variability in flooding behaviour, the description of flood mechanisms and event progression is presented across four locations, as defined in Section 1.3.4 of this report, and shown again in Figure 8-1, below. A flood mechanism and extent area map is provided for each area in Appendices F, G, H, and I. The four study areas are as follows:

- East of the River Monnow (Monnow Street area)
- West of the River Monnow (Drybridge Street, Cinderhill Street area)
- South of the River Monnow (Wonastow Road area)
- Watery Lane and Rockfield Road area

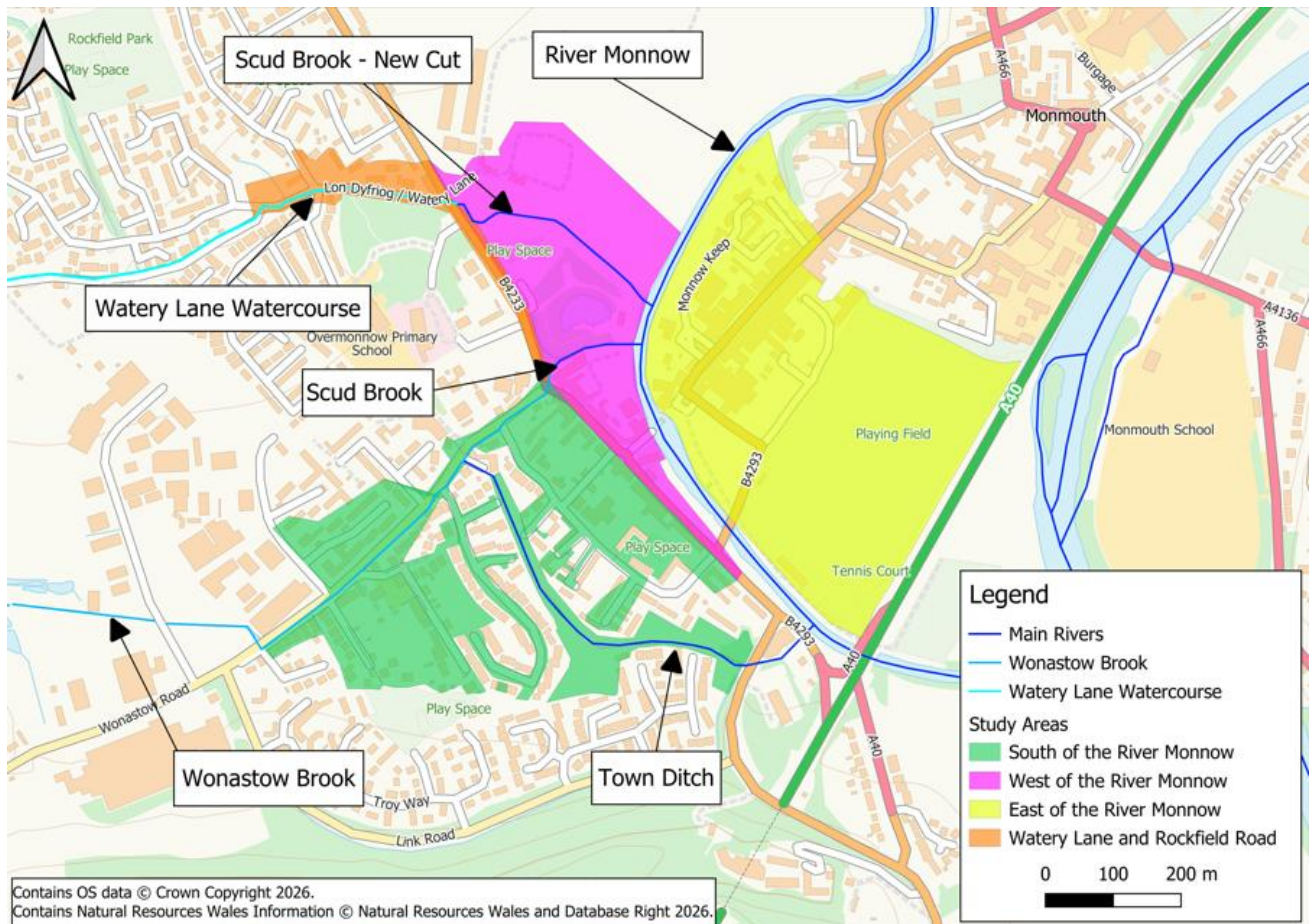


Figure 8-1 Monmouth Town Sub-Catchment Study Areas

Across these areas, it is estimated that approximately 351 residential and commercial properties were flooded internally. 84 responses (of 131 received) from the engagement survey also inform the assessment for these areas.

Generally, flooding across Monmouth Town resulted from an exceedance of capacity within the River Monnow, with the watercourse overtopping defences upstream of Monnow Bridge for their length up to Castle Hill. As detailed in Section 4.2, such river levels resulted from a period of heavy and sustained rainfall concentrated across the catchment causing river levels to rise rapidly. The River Monnow responded strongly to this rainfall with flows reaching the highest on record at the Grosmont gauge. The River Wye experienced a more moderate rise in levels due to the focus of the storm across the Monnow catchment as opposed to the wider Wye catchment.

It is important to note, that the Monmouth Gate River level gauge should be read with caution due to the interaction of the Rivers Wye and Monnow at this location. River levels present differently dependent on whether the event is considered Monnow-dominant or Wye-dominant. The Monnow Gate Gauge also recorded the highest level on record during the Storm Claudia event at 6.66 mAOD. This compares to a peak river level of 4.83mAOD on the River Wye, Monmouth gauge, further demonstrating the difference in water levels between the two watercourses and the Monnow-dominant event of Storm Claudia. Further detail is provided in Section 4.2.

8.1.1 East of the River Monnow (Monnow Street area)

Analysis of observed flood mechanisms within the Monnow Street area indicates that flooding was initiated by early overtopping of defences along Monnow Keep, initially at the residential end of the highway, closely followed by overtopping to the rear of the commercial area. South Wales Fire and Rescue Service witnessed and filmed the onset of overtopping behind commercial properties as it began, providing further evidence of this flood pathway. CCTV evidence from a nearby commercial property confirms internal flooding began at approximately 01:00, suggesting that this location represents one of the first points of ingress into the defended area.

Across the residential area to the eastern extent of Monnow Keep, it is noted that a small number of properties located at marginally higher ground levels than surrounding properties remained internally flood-free, indicating the importance of threshold levels and local property flood resilience measures in influencing flood impacts.

As water levels continued to rise, subsequent overtopping occurred further downstream to the rear of commercial premises in the vicinity of Monnow Bridge, with some properties in this area reporting water entering cellars through the floors prior to any overtopping. Such a mechanism is likely driven by a high water table associated with the high water levels within the River Monnow. Evidence suggests that, in several cases, floodwater initially entered properties from the rear, prior to entering from the front, via Monnow Keep. Flows were then conveyed in a north-easterly direction into Monnow Street.

Flow pathways from Monnow Keep and the Monnow Bridge area converged along Monnow Street. Properties on Monnow Street reported water entering from the rear initially, followed by water entering from the front as a consequence of the flooding to Monnow Street. This is reflected by reports which indicate internal flooding to properties along the north-eastern

extent of Monnow Street between approximately 01:15 and 01:55. The lower section of Monnow Street, at Monnow Bridge, is reported from survey responses to have overtopped later, at approximately 02:30.

Figures 8-2 and 8-3 illustrate internal and external flooding along Monnow Street, where maximum flood depths were reported to exceed 1m.



Figure 8-2 Internal flooding in Costa Coffee, Monnow Street (Image from Social Media)



Figure 8-3 Flooding on Monnow Street (Image from Social Media/News Reports)

Flows continued in an easterly direction inundating commercial properties along the high street and across Chippenham Fields towards the River Wye. Chippenham Fields effectively acted as a flood storage area as a consequence of the elevated ground levels of the A40 and Chippenham Gate Street to the east and north of Chippenham Fields, respectively. The flood extent is shown in drone imagery in Figure 8-4.

Flows are conveyed from Chippenham Fields via a culvert under the A40. This culvert is flap-valved to prevent backflow in the event of high-water levels and / or flooding associated with the River Wye. The outfall is located within a coarse grid size 'cage' to prevent access to the outfall by the general public. It is understood that during the Storm Claudia event, the flap valve was unable to open to 100% capacity due to the cage preventing full opening. However, flows were still able to be conveyed for the duration of the event. During the event, the cage was removed from the outfall allowing the flap valve to fully open. It is not envisaged that this partial opening of the flap valve would have greatly impacted the flood mechanisms, extent, depth or duration of the event seen across the 'East of the River Monnow' area.



Figure 8-4 Drone Imagery of Storm Claudia across the East of Monnow Study Area

Overall, the flooding mechanisms observed are consistent with a combination of:

- Localised defence overtopping at topographic low points;
- Progressive overtopping of downstream defences as water levels increased;
- Flow routing along urban corridors, particularly Monnow Keep and Monnow Street; and
- Attenuation in low-lying downstream areas.

Whilst the general sequence and mechanisms are well supported by available evidence, some uncertainty remains regarding the precise timing and relative contribution of individual entry points at specific locations.

Across this area, 129 properties were flooded internally. Table 8-1 summarises maximum flood depths and number of properties flooded across a spread of streets within the Study Area to provide an overview of flood impact across the East of the River Monnow area.

Table 8-1 Maximum flood depths reported by street - East of Monnow Area

Street name	Number of residential properties internally flooded	Number of commercial properties flooded	Maximum reported internal property flood depth (cm)
Monnow Street	4	88	1500
Monnow Keep	18	0	150

Street name	Number of residential properties internally flooded	Number of commercial properties flooded	Maximum reported internal property flood depth (cm)
Howells Place	7	1	45

Defences

During Storm Claudia, observed flooding suggests that water levels exceeded the effective capacity of the defence system in place, resulting in overtopping and the inundation of areas adjacent to the River Monnow. There is no report of breach or damage to the defences resulting in flooding to the town centre. This is consistent with findings from national-level reviews, which note that flooding in defended areas often occurs where event magnitudes exceed design standards, even where defences remain structurally intact.

NRW have advised that the defences across Monmouth (Section 3.4.1) have a SoP of the 1% AEP event. Hydrological analysis of the event suggests an indicative return period of around a 1 in 50 to 1 in 75-year event (approximately 1.3%–2% annual chance). It is therefore considered likely that the Flood Map for Planning and the associated modelling informing this dataset may not fully reflect the current performance of the defences or the severity of the extreme event experienced during Storm Claudia. NRW is currently developing a new hydraulic model for Monmouth, incorporating updated hydrological and survey data. This model will be used to review the SoP provided by the existing flood defences and improve understanding of their performance during extreme flood events. Design flows may have increased due to updated flood data, improved estimation methods, and the potential influence of changing environmental conditions. Notably, four of the highest flood events on record have occurred since 2019, including Storms Claudia, Dennis, and Bert.

8.1.2 West of the River Monnow (Drybridge Street, Cinderhill Street area)

This area is largely characterised by greenspace, incorporating a skate park and the Wonastow Road pumping station. No survey responses were received from the northern part of the Study Area. A total of seven responses were received from properties within the Cinderhill and Drybridge areas. While the Study Area covers a relatively large extent, much of the northern area comprises open green space and agricultural land, with residential and commercial properties concentrated around Cinderhill and Drybridge.

However, notable impacts were recorded at the caravan park, which experienced flooding. Photographic evidence and incident reports indicate that flooding was widespread across the entire area, as shown in Figure 8-5. Impacts to the Wonastow Road pumping station are further detailed in Section 9.3.

Evidence suggests that embankment erosion of the landward face of the NRW maintained earth embankment along the River Monnow occurred during the event, as shown in Figure

8-6. It is important to note that this erosion did not result in a breach of the defence, with both the erosion and onset of flooding resulting from overtopping of the defence. Since the event, NRW have undertaken repair work to the area of erosion. Evidence of overtopping can be seen in Figure 8-7.

It is understood that water first overtopped the defences before subsequently flowing along Wonastow Road towards wider residential areas, contributing to the widespread flooding. In addition, overtopping of the defences by the skate park resulted in flow onto Rockfield Road and subsequently onto Drybridge Street. Open greenspace within this area forms active floodplain of the River Monnow and is therefore anticipated to be inundated with flood water in events such as Storm Claudia.

Reports indicate that flooding occurred along Cinderhill Street at approximately 02:00, with water depths reaching up to knee height (approximately 0.6 m). Several properties experienced significant impacts, including the complete inundation of cellars. Floodwaters are reported to have persisted for an estimated 24 to 36 hours before receding.



Figure 8-5 Drone Image of Flooding Across West of Monnow Study Area



Figure 8-6 Erosion to Landward Side of NRW Maintained Earth Embankment Defence



Figure 8-7 Overtopping of the NRW Maintained Earth Embankment Defence

8.1.3 South of the River Monnow (Wonastow Road area)

In the Wonastow Road, Fitzroy Close, Elstob Way and Holywell Close area, flooding affected highways and primarily residential properties, with water flowing from the north along Wonastow Road and from the River Monnow. This resulted in significant flood depths on roads and within properties closest to the River Monnow. Many residential properties towards the western extent of this Study Area are raised above the local highway levels resulting in external flooding only. Reports indicate that flooding developed during the early hours of the morning, with flooding at Kings Fee predominantly affecting driveways and rear gardens at approximately 02:00.

The Wonastow Brook is understood to have backed up as a result of high-water levels in the River Monnow restricting the discharge of flows from the smaller watercourse, and subsequent failure of the pump station as a result of overtopping of the NRW maintained flood defences along the River Monnow causing flooding and subsequent damage to the asset. Further information on failure of the pump station is contained in Section 9.3. However, it is considered that such mechanisms will not have had a substantial impact on flood duration, depth or extent due to the volume and rate of overtopping of the River Monnow during the event.

Primary fluvial flood routing resulted from overtopping of the River Monnow upstream of Monnow Bridge, within the 'West of the River Monnow' area. Fluvial flows tracked in a westerly direction towards Rockfield Road and beyond, tracking approximately 600m along Wonastow Road and subsequently flowing in a primarily southerly direction to wider residential areas. It is understood that the River Monnow did not overtop defences between Monnow Bridge and the A40, with water remaining in channel for this stretch of the Main River. Figure 8-8 shows evidence of the water level on the left-hand embankment of the River Monnow along this stretch of the watercourse. The River Monnow is on the right-hand side of the image.



Figure 8-8 Evidence of Water Level Downstream of Monnow Bridge

Along the Old Town Ditch corridor, there is limited evidence to confirm widespread overtopping in upstream reaches, although some inconsistent reports suggest localised spilling into adjacent gardens further downstream. Figure 8-9 provides an indication of the maximum water level within the Old Town Ditch.

Properties along Wonastow Road, west of its junction with Fitzroy Close, did not generally experience internal flooding, due to raised property thresholds (approximately 1 metre above road level), although floodwater depths on the highway were sufficient to approach property curtilages, as shown in Figures 8-10, 8-11 and 8-12. It is recognised that 8 residential properties within this reach did report internal property flooding.



Figure 8-9 Flood Level within Old Town Ditch



Figure 8-10 Flood Level along Wonastow Road



Figure 8-11 Evidence of Water Level, Wonastow Road



Figure 8-12 Wonastow Road Water Level

Within Victoria Estate, flood routing appears to have been more complex, with evidence of water entering both from the front of properties via highway flow routes and from the rear via gardens. Reports indicate that flooding in this area also occurred during the early hours, typically between 02:30 and 03:00, suggesting a rapid escalation of conditions. Whilst local surface water flow routes and drainage exceedance may have influenced the pathways and extent of flooding, available evidence indicates that flooding was primarily driven by elevated water levels in the River Monnow.

Ground levels across the Wonastow Road area vary greatly resulting in a range of flood depths reported through the property survey. Generally, ground levels are lowest east of Old Town Ditch and west of Cinderhill Street. Consequently, flood depths of over 2m were reported adjacent to Goldwire Lane where ground levels surrounding Homeforge House and Cappers Place are significantly lower than adjacent land. As shown in Figure 8-13, an electricity substation within this area was significantly inundated, and flood levels of approximately 2m are evidenced to this area, as shown in Figure 8-14.



Figure 8-13 Electricity Substation on land adjacent to Goldwire Lane



Figure 8-14 Significant Flood Levels across Land adjacent to Goldwire Lane

Across this Study Area, 121 properties were flooded internally, with 45 properties reporting external flooding within the bounds of the property curtilage. Table 8-2 summarises maximum flood depths and number of properties flooded across a spread of streets within the Study Area to provide an overview of flood impact across the 'South of the River Monnow' area.

Table 8-2 Maximum flood depths reported by street - Wonastow Road Area

Street name	Number of residential properties flooded	Number of commercial properties flooded	Maximum reported flood depth on street (m)
Wonastow Road	15	7	1
Victoria Estate	18	1	0.3
Fitzroy Close	0	0	0.35
Land adjacent to Goldwire Lane	14	0	>2

8.1.4 Watery Lane and Rockfield Road

Flooding in the Watery Lane and Rockfield Road area is understood to have initially resulted from the Watery Lane watercourse backing up as a consequence of being unable to discharge into the River Monnow due to its elevated levels. This is supported by

evidence from the LLFA-installed camera on the Watery Lane watercourse, which stopped transmitting at approximately 00:10, significantly before the initial reported overtopping of the NRW defences on the River Monnow. A tide mark recorded at over halfway up the camera indicates that water levels in the watercourse were significant at this time. The observed damage also suggests high flows and volumes within the watercourse system, with impacts reported to be greater than those experienced during previous flood events.

Initial flooding affected the highway and properties close to the Watery Lane and Rockfield Road roundabout. The culvert outlet from the Watery Lane system into the River Monnow is understood to have a security screen but no flap valve. As a result, elevated levels in the River Monnow are likely to have backed up into the Watery Lane system, increasing water levels and contributing to flooding in this area. Secondary flood mechanisms occurred later as the River Monnow itself overtopped, with additional properties affected by fluvial flows from the Monnow, including some properties that had not previously reported flooding. Given the extent of flooding following overtopping of the defences, it is difficult to isolate and fully determine the extent of flooding as a direct consequence of the Watery Lane Watercourse against the secondary flood mechanisms of the River Monnow overtopping. Images showing the aftermath of flooding to this Study Area are shown in Figures 8-15 and 8-16.

Several residents were evacuated by the Coastguard, and floodwater remained within properties for approximately 12 to 15 hours. A summary of flood depths across the Study Area is contained in Table 8-3.

A planned Property Flood Resilience scheme, funded by Welsh Government, was due to be commenced in December 2025. This involved installing PFR measures to seven properties who had experienced significant internally flooding in recent years. These measures have since been installed following Storm Claudia. Given the recorded depths and evidence of significant water levels within the Watery Lane system, it is likely that some of the PFR measures may have been overtopped during this event, although they may still have helped to reduce the rate of water ingress and subsequent damage in less severe conditions.

Table 8-3 Maximum Flood Depths reported by street - Watery Lane and Rockfield Road

Street name	Number of residential properties internally flooded	Number of commercial properties internally flooded	Maximum reported flood depth on street (m)
Watery Lane	9	0	1.22
Rockfield Road	5	0	0.91



Figure 8-15 Evidence of Water Level along Watery Lane



Figure 8-16 Aftermath of Flooding along Watery Lane

8.2 Groundwater

Anecdotal reports indicate that some properties experienced flooding as a result of water rising through the floorboards. However, this was generally reported as the initial mechanisms of flooding to a property, prior to flood waters entering via other ingress routes such as doors. This flood routing mechanism is attributed to the high river levels on the River Monnow throughout the event.

No property reported flooding as a sole consequence of waters entering the property from the ground.

8.3 Tidal

This section is not applicable to this report, it is retained for consistency with other FWMA Section 19 reports prepared by MCC.

There is no tidal influence on the Rivers Wye or Monnow at Monmouth.

8.4 Surface Water and Land Drainage

It is inevitable that surface water and land drainage networks were at capacity during the Storm Claudia event due to the volume of heavy rainfall and general fluvial flood extent likely entering existing systems. Whilst surface water flooding is likely to have occurred in some areas as a direct consequence of this, the main source of flooding during this event is fluvial. Consequently, surface water flooding and flooding associated with any land drainage assets have not been considered in any greater detail within this report. No properties reported flooding that was directly attributable to surface water or land drainage sources.

9 Impact of the Event

9.1 People

9.1.1 Skenfrith, Rockfield and Forge Road

Residents in Skenfrith, Rockfield and Forge Road reported significant and lasting impacts following repeated flood events. Many properties in these communities have experienced flooding on multiple occasions, contributing to a growing sense of frustration, fatigue, and emotional strain. Several residents described feeling “fed up” and mentally drained, with some expressing difficulty in maintaining a positive outlook about the future of their homes and community.

The cumulative nature of repeated flooding has diminished residents’ confidence in both their ability to recover and frustration in the lack of any form of formal flood defence to mitigate flood risk to their properties. This has led to heightened anxiety during periods of prolonged or heavy rainfall. Residents reported that they routinely monitor weather forecasts and rainfall gauge data closely, often feeling compelled to remain vigilant during storm events due to fear of further flooding. This constant state of alertness has had a notable impact on wellbeing, with individuals describing an ongoing sense of worry and uncertainty.

In addition to physical damage, the repeated disruption has affected residents’ sense of security within their own homes. The emotional toll, coupled with the recurrent nature of the incidents, has contributed to reduced resilience across the community.

9.1.2 Monmouth

In contrast, feedback from residents in Monmouth generally indicates a different perception of the event and its implications. The flood event was widely communicated by residents as an “extreme” occurrence, often described as a 1 in 1,000-year event. As a result, some residents expressed the belief that a similar event is unlikely to happen again within their lifetimes.

While this perception may provide short-term reassurance, it also presents a potential risk in terms of future preparedness. A number of residents indicated that they may be less inclined to take preventative measures or engage in flood preparedness activities, given the assumption that such an event is unlikely to recur. This could increase vulnerability in the event of future flooding, particularly as climate variability may influence the frequency and intensity of extreme weather events.

Given the unprecedented scale of flooding in Monmouth, Monmouthshire County Council established a Humanitarian Aid Centre in the Town’s Shire Hall. The centre assisted in collecting information about the impacts of the flooding, provided essential recovery information to residents, and supplied cleaning goods, dehumidifiers and other essentials to help support those who had been significantly impacted by flooding. The centre was

supported by the National Flood Forum who were on hand to provide additional advice and the 'Floodmobile' trailer which attended Monmouth to provide information on aspects such as flood insurance and making properties resilient to flooding.

Additionally, the event highlighted the importance of community support networks, particularly for vulnerable individuals. Some residents, especially those with additional needs, reported difficulty coping in the absence of regular community engagement initiatives. The temporary loss or disruption of support services, such as hot meals provided through local community hubs (e.g. church facilities or community events at Drybridge House), had a tangible impact on wellbeing. This underscores the importance of maintaining and strengthening community resilience mechanisms, particularly for those most at risk during and after flood events.

9.2 Property

403 properties (a combination of commercial and residential) were directly impacted across the Study Areas of this report in the Storm Claudia event. Of these, 233 residential properties flooded internally, with 57 reporting external flooding. 109 commercial properties flooded internally, with 4 reporting external flooding. Additional properties were also impacted where they were located across the upper stories of properties (e.g. flats) where flood waters did not directly enter their premises, but the ground floor was impacted, and access and egress routes would have been inaccessible. The ground floor units have been captured in the figures stated above.

The depth of floodwater within the properties reported within the survey responses varies across the areas according to the flood mechanism, local ground level and property Finished Floor Levels. The maximum approximate internal floodwater depth reported was highest in the 'South of the River Monnow Area' on Glenroyd Terrace at 2.5m.

Reports of costs of damage to home and possessions from flooding per property vary considerably, as a consequence of experienced flood depths and also property type (i.e. residential vs commercial). Numerous properties reported estimated costs of £200 to £3,000 for external flooding, with most residents reporting costs of £50,000-£300,000 for internally flooded residential properties. Commercial units which flooded internally reported estimated costs of £100,000 to £650,000 in damages.

Tables 9-1 and 9-2 provide an overview of the impact of the event to residential and commercial properties across the Study Areas.

Figure 9-1 offers a small representation of the scale of the flooding and the impacts it had on properties.

Table 9-1 Impacts of flooding to residential properties

Investigation area	Number of residential properties to have reported to have flooded internally	Reported maximum depth of flooding (m)	Reported maximum estimated cost of damage from flooding (£)
Skenfrith	18	1.5	~£200,000
Rockfield	4	1.5	~£50,000
Forge Road, Osbaston	14	1.3	~£300,000
Monmouth Town	197	2	~£150,000

Table 9-2 Impacts of flooding to commercial properties

Investigation area	Number of Businesses to have reported to have flooded internally	Reported maximum depth of flooding (m)	Reported estimated cost of damage from flooding (£)
Skenfrith	7	No Data	No Data
Rockfield	1	No Data	No Data
Forge Road, Osbaston	2	0.13	No Data
Monmouth Town	99	1.5	~£650,000



Figure 9-1 Flooding on Monnow Street (sourced from social media images)

9.3 Infrastructure and services

Infrastructure

Wider infrastructure across Monmouthshire was also impacted as a direct consequence of the Storm Claudia event which includes flooding of main A and B highways restricting access to towns and villages, including Rockfield and Skenfrith. Emergency Services, including assistance from SARA, was required in some instances to facilitate evacuation procedures and check-in on residents choosing to stay in their properties for the duration of the flood event. As detailed in Section 7.1, two primary schools were also impacted by the event, with one school shut for 4 weeks before reopening to accommodate pupils and learning. Full recovery took longer than this four-week period. Figure 9-2 displays drone footage of flooding across the two primary school sites, with Figure 9-3 displaying an image of the clear water level against Osbaston Primary Lower School.



Figure 9-2 Drone Footage of Flooding across Osbaston Primary Schools



Figure 9-3 Osbaston Primary - Water Level Mark

In Monmouth, the Wonastow Brook pumping station was compromised when the adjacent flood defences overtopped in the early hours of Saturday morning (15th). This large pumping station serves the Wonastow Brook only, and is designed to pump water from the brook, over the NRW maintained Main River flood defences and into the River Monnow, when the brook is no longer able to discharge due to flood locking when the River Monnow is in spate. Full details on the purpose of this asset are contained in Section 3.4.2. The overtopping of the defences resulted in flooding to the entire pumping station to depths of approximately 1.4m, resulting in significant damage to the machinery and electrical instrumentation. The pumping station ceased working in the early hours of Saturday due to the water damage incurred. Figure 9-4 shows flooding to the pumping station.

At the time of flooding an operative was present in the pumping station undertaking a routine inspection; normal procedure during a flood event. At the time of the inspection, there was no indication of an issue to the pump, and there was little anticipation of overtopping of the defences resulting in a significant risk to any operative in attendance at the pumping station. Flooding to the pumping station occurred as a direct consequence of overtopping of the adjacent NRW maintained flood defences along the River Monnow. Upon the ingress of water, the operative vacated the building and was evacuated by emergency services by boat from Rockfield Road.

Given the extent of flooding, it is not envisaged that the failure of this asset greatly impacted the fluvial flood impact of the Storm Claudia event. Flooding is primarily driven by the overtopping of defences by the River Monnow and the interaction of such flows with other watercourses within the area. It is considered unlikely that pumping of the Wonastow Brook

to the River Monnow for the duration of the event would have positively reduced the observed impacts of the event.

Post-event, whilst the pumps were not operational, Monmouthshire County Council brought in hired pumps in case of further heavy rainfall and flooding. The repair costs to the pumping station and surrounding infrastructure are estimated to be in the region of £180,000.



Figure 9-4 Wonastow Road Pumping Station

Wider across Monmouthshire, a section of railway track was reportedly washed out north of Pandy, near Vineyard Farm, resulting in a full closure of the line until repairs were completed. Although this location is understood to lie just outside Monmouthshire, the disruption had wider impacts on passengers travelling to and from locations including Abergavenny. It is therefore recommended that Network Rail considers flood resilience and mitigation measures for vulnerable sections of railway infrastructure within the wider catchment, including opportunities to work collaboratively with catchment-based initiatives such as the Resilient Rivers Monnow project.

Services and Wider Impacts

In terms of critical services, there is no evidence to suggest that regional healthcare facilities experienced severe impacts as a result of the flood event. The local hospital was not reported to have flooded internally. However, the local doctor's surgery was significantly affected by flooding, resulting in disruption to healthcare provision. A temporary pharmacy facility was established to maintain access to essential services while recovery works were undertaken, and it is understood that the surgery closed for an extended period following the event, eventually re-opening in July 2026.

The event caused significant disruption to local services and infrastructure, including the loss of power and Wi-Fi connectivity in affected areas. National Grid deployed multiple generators to support the restoration of electricity supplies and help minimise the impacts on residents, businesses and community facilities during the recovery period. It is also understood that an electricity substation located adjacent to Homeforge House, Goldwire Lane, has since been raised to reduce the risk of future flood impacts.

10 Conclusions and Recommendations

10.1 Conclusions

Storm Claudia, which affected Monmouthshire between 9th and 15th November 2025, was characterised by a prolonged period of heavy rainfall culminating in a significant flood event on 14th and 15th November 2025. The event followed a sequence of escalating weather and flood guidance warnings, with saturated ground conditions and sustained rainfall leading to rapid runoff and exceptional rises in river levels across the River Monnow catchment.

This Section 19 Flood Investigation has identified that flooding during Storm Claudia was a major fluvial-driven event, affecting Skenfrith, Rockfield, Forge Road, Osbaston and Monmouth Town. The River Monnow responded rapidly to the rainfall, reaching record or near-record levels and overtopping its banks at multiple locations, resulting in widespread inundation of properties, infrastructure and surrounding floodplain areas.

Flooding mechanisms across the Study Areas were dominated by out-of-bank flow from the River Monnow, with flood routing strongly influenced by local topography, floodplain connectivity and the interaction of tributaries and ordinary watercourses. Backwater effects were observed in locations such as Rockfield and Forge Road, contributing to the extent and duration of flooding. Groundwater emergence was also evident in low-lying areas, particularly where sustained high river levels resulted in water rising through floors and below-ground structures.

The scale of the event was considerable, with approximately 403 residential and commercial properties affected, including widespread internal flooding. Flood depths varied significantly across the Study Areas, exceeding 1.5m in some areas. These variations reflect the influence of local ground levels, property thresholds and flow pathways on flood impacts.

Flood risk management performance varied across the catchment. In Monmouth Town, formal flood defences provided a degree of protection but were overtopped when river levels exceeded their effective capacity, with localised low points influencing the onset and progression of flooding. There remains uncertainty regarding the current standard of protection provided by these defences, indicating a requirement for updated modelling and assessment. In contrast, Skenfrith, Rockfield and Forge Road rely on PFR measures, which provided little protection during an event of this magnitude.

The performance of infrastructure assets generally reflected the severity of the event. The Wonastow Road pumping station was inundated and failed when the adjacent Main River defences overtopped; however, this is not considered to have materially influenced the overall flood extent, which was predominantly driven by fluvial processes from the River Monnow. The incident does, however, highlight vulnerabilities in asset resilience and operational safety under extreme flood conditions.

Community impacts varied across the Study Areas. In locations with a history of repeated flooding, the cumulative impact of events has contributed to increased anxiety, reduced confidence in flood risk management and a heightened sense of vulnerability. In contrast, some residents in Monmouth perceived the event as an extreme, low-probability occurrence, which may reduce the likelihood of future preparedness and resilience measures being adopted.

Overall, the investigation confirms that flood risk within the River Monnow catchment is influenced by a combination of catchment-scale hydrological processes and localised factors, including topography, drainage interactions, defence performance and groundwater behaviour. Storm Claudia represents a severe event, which has highlighted key vulnerabilities in flood risk management, infrastructure resilience, warning systems and community preparedness. Addressing these issues will require a coordinated and sustained approach, combining improved understanding of flood mechanisms with targeted interventions and enhanced engagement to increase resilience to future flood events.

10.2 Recommendations

In accordance with Section 19 of the FWMA 2010, as LLFA, MCC has investigated this flood event. As a result of the findings of this investigation the following recommendations, in Table 10-1, have been made. The recommendations have been given unique identifiers which link to the respective Study Areas of Skenfrith (SK), Rockfield (RF), Forge Road, Osbaston (FR), Monmouth Town (M) and the River Monnow Catchment (MC).

Table 10-1 Recommendations from the Section 19 Flood Investigation

Reference	Recommendation	Responsible Risk Management Authority
SK001	Skenfrith Continue with the progression of the current Outline Business Case for an engineered flood alleviation scheme as well as the planned Property Flood Resilience Scheme for properties in Skenfrith. Any engineered scheme must give consideration to flooding from the Norton Brook as well as overland flows and surface water from adjacent high ground. Any future scheme should ensure flood risk (from all sources) is not increased in the village or the surrounding area.	NRW
SK002	Skenfrith Develop a traffic management / road closure plan which can be used during times of flooding by the Highway Authority (MCC) and Emergency Services. Consideration should also be given to providing training to local residents who are in a position to deploy and maintain the traffic management measures when closures are required during future flood events.	MCC
SK003	Skenfrith Undertake further surveys to assess the condition of the culverted ordinary watercourses running through Skenfrith. Identify any necessary remedial works and record the asset details on Monmouthshire County Council's asset database.	MCC
RF001	Rockfield Consideration should be given to the provision of a new river gauge upstream of Rockfield in order to provide improved forecasting and monitoring of river levels. Such a gauge has potential to enhance awareness and understanding of flood risk as well as resilience of downstream communities.	NRW
RF002	Rockfield Undertake an Initial Assessment of options to reduce flood risk resulting from flooding from the Main River Monnow. Consideration should also be given to the delivery of a Property Flood Resilience Scheme if an engineered flood alleviation scheme is not deemed viable in the	NRW

Reference	Recommendation	Responsible Risk Management Authority
	short or long term.	
RF003	Rockfield Consider the requirement for a multi-agency Community Flood Management and Response Plan for Rockfield to inform and aid the emergency response to future flood events. This should include community engagement, awareness raising and training to enable the community to monitor, interpret, act and respond to relevant trigger levels on the River Monnow.	MCC
FR001	Forge Road Continue with the progression of the planned Property Flood Resilience Scheme for properties in Forge Road and Osbaston Road.	NRW
FR002	Forge Road Undertake an Initial Assessment of options to reduce flood risk from the Main River Monnow across the Forge Road Study Area using current Welsh Government FCERM Business Case Guidance and updated hydraulic modelling. The assessment should include a review of all previous historic studies, consider natural flood management options and consider the standard of protection currently provided by the NRW maintained flood embankment adjacent to Osbaston weir	NRW
FR003	Forge Road The ordinary watercourse to the rear of Forge Road should be maintained to support conveyance during lower return period events and to manage local land drainage and overland flows.	Riparian Owners and MCC
M001	Monmouth Town The current location of the Monnow Gate river gauge should be assessed, and alternative configurations explored, to identify any opportunities for enhancing monitoring and flood forecasting performance during both River Wye and River Monnow dominant flood events.	NRW
M002	Monmouth Town The standard of protection provided by the Monmouth Town defences should be reviewed,	NRW

Reference	Recommendation	Responsible Risk Management Authority
	including consideration of whether current flood zone mapping remains representative of defence performance.	
M003	Monmouth Town Flood resilience and safety measures should be reviewed at the Wonastow Road pumping station, including safe access and egress arrangements, such as ladders where appropriate.	MCC
M004	Monmouth Town Consider the requirement for a multi-agency Community Flood Management and Response Plan to inform and aid the emergency response to future flood events. This should include community engagement, awareness raising and training to enable the community to monitor, interpret, act and respond to river trigger levels on the Monnow. This will give the community more ownership of the flood plan.	MCC
M005	Monmouth Town Develop a Community Flood Management and Long-Term Response Plan for Monmouth, with a focus on longer-term recovery following the initial emergency response phase. The plan should consider post-emergency recovery arrangements, including the preparation of a Humanitarian Aid Centre Handbook to take a proactive approach to future flood preparedness. Any guide should include aspects such as how, where and when to set up such a centre.	MCC
M006	Monmouth Town Communications and engagement should be undertaken in Monmouth to raise awareness of flood risk and the need for preparedness, supporting communities to be aware, adapt, respond and recover. This work could include engagement with organisations such as the National Flood Forum and include the development of community flood plan for specific areas in Monmouth.	NRW/MCC

Reference	Recommendation	Responsible Risk Management Authority
M007	Monmouth Town Consider the requirement for a public information leaflet, specific to Monmouth, which can provide vital information to the general public regarding flood risk to the town, including information on river levels, flood warnings, preparedness, resilience and recovery etc.	MCC
MC001	Monnow Catchment A review should be undertaken on the uptake and understanding of the flood warning service in Monmouth and the wider Monnow catchment. This review should seek to ensure as many people are aware of the service, that they are signed up using current contact details, and they are fully aware of what actions should be taken when different levels of Flood Alerts and Warnings are issued.	NRW
MC002	Monnow Catchment A review of the timing of severe flood warnings throughout the Monnow catchment should be undertaken to ensure adequate advance notice is provided for people to respond effectively	NRW
MC003	Monnow Catchment A strategic catchment management plan should be considered for the River Monnow to support coordinated flood risk management across the catchment. Natural flood management opportunities should be considered where they align with wider catchment initiatives, including the Resilient Rivers Monnow project.	NRW
MC004	Monnow Catchment It is recommended that Network Rail considers flood resilience and mitigation measures for vulnerable sections of railway infrastructure within the wider catchment, including opportunities to work collaboratively with catchment-based initiatives such as the Resilient Rivers Monnow project.	Network Rail

A Survey

Name:

Address:

Type of property:

- A. Residential
- B. Business

Telephone Number:

Email address:

1) Please indicate what impact Storm Claudia had on your property:

- a) Internal flooding
- b) External flooding (flooding to garden, driveway, outbuildings etc.)
- c) Access / Egress issues
- d) Loss of utilities – (power, heating etc.)
- e) Loss of communications (wifi, telephone)
- f) Other / some or all the above/ Additional Comments:

2) If flooded internally, what time & date did water begin to enter your property?

3) How long did the flooding last?

4) Please describe how the property flooded:

- a. Water entered from the front first
- b. Water entered from the rear first
- c. Water entered from the ground/up through the floors
- d. Other / Additional comments:

5) Where did the water come from?

- a. River/watercourse overflowing
- b. Water running off the ground
- c. Highway drains overflowing/blocked
- d. Sewers overflowing/blocked
- e. Groundwater (seeping up through the ground)
- f. Don't know
- g. Other / Additional comments:

- 6) Please describe the extent of flooding to your property (depth, extent, rooms affected, damage goods etc).

- 7) Did you have to move out of the property?

- a. Yes
- b. No

- 8) Can you provide an estimate of the cost of damage to the property?

9) Did you require assistance from the emergency services during the flood event?

10) Does your property have property flood resilience measures installed (such as flood door, barriers, sealed air bricks etc.)?

- a. Yes
- b. No

If yes, what resilience measures do you have and how did they perform?

11) Are you signed up to receive Flood Warnings from Natural Resources Wales?

- a. Yes
- b. No

12) Did you receive a Flood Alert or Flood Warning from NRW?

- a. Yes
- b. No

If yes, what actions did you take on receipt?

13) Has the property flooded before?

- a. Yes
- b. No

If yes, when?

14) Please outline any concerns you have in respect of future flooding and what would you like to see happen to reduce the risk to your property/community?

15) Would you find a community flood plan and/or an individual flood plan useful?

16) Please provide any further information in relation to the impacts of Storm Claudia

17) Please upload any photos you have of the flooding during Storm Claudia

Not possible using paper copies for the questionnaire.

B Hydrology Report



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consulting

Monmouthshire S19 Hydrological Data Analysis

Draft

A1-C01

Prepared for
Monmouthshire County
Council

Date
September 2026



Document Status

Issue date	September 2026
Issued to	Ross Price - Monmouthshire County Council
BIM reference	RPI-JBA-XX-XX-RP-HY-0001-A1-C01-Monmouth_Hydrology_Summary
Revision	A1-C01
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Contract

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This report describes work commissioned by Monmouthshire County Council, by an instruction dated 17th December 2025. The Client's representative for the contract was Ross Price of Monmouthshire County Council. Clare Burnell and Jenni Essex of JBA Consulting carried out this work.

Purpose and Disclaimer

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The methodology adopted and the sources of information used by JBA in providing its services are outlined in this Report. The work described in this Report was undertaken between 23rd February 2026 and 27th March 2026 and is based on the conditions encountered and the information available during the said period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by JBA has not been independently verified by JBA, unless otherwise stated in the Report.

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Abbreviations

AMAX	Annual Maximum
API	application programming interface
FWMA	Flood Water Management Act
GEV	Generalised extreme flow
LLFA	Lead Local Flood Authority
MCC	Monmouthshire County Council
NGR	National Grid Reference
NRFA	National River Flow Archive
NRW	Natural Resources Wales
S19	Section 19
SMD	Soil Moisture Deficit

1 Scope and objectives

On 14th/15th November 2025 flooding associated with 'Storm Claudia' occurred in the River Wye and River Monnow catchments. The town of Monmouth and nearby settlements, such as Skenfrith, were severely affected.

As Lead Local Flood Authority (LLFA), Monmouthshire County Council (MCC) has a duty to prepare and publish reports of significant flood incidents, as detailed within Section 19 (S19) of the Flood and Water Management Act 2010 (FWMA). As part of the preparation for the 14th/15th November 2025 flood incident S19 report, MCC commissioned JBA Consulting to compile an account and analysis of the meteorological and hydrological event data. This analysis will support understanding and communication of the flood event and provide an estimate of the event frequency.

The key tasks for this study were:

- Collect and collate hydrometric datasets and any other relevant data / information relating to the flood event.
- Review, quality check and analyse all data, extracting and visualising key parameters such as storm duration, time-to-peak, flood peak travel time, and maximum and total values.
- Estimate event frequency from level, flow (where possible) and rainfall data, to provide a probable range in which the events lie.
- Document the findings of the assessment, including discussion and comparison of the hydro-meteorological conditions, and results of the frequency analysis.

This report is divided into the following sections:

Section	Heading
1	Scope and objectives
2	The study area
3	Available data and quality checks
4	Flood event characteristics and catchment response
5	Flood frequency estimation approaches
6	Summary

2 The study area

2.1 Study area

The study areas for the Section 19 report are four key communities affected by Storm Claudia, Figure 2-1.

- Monmouth
- Forge Road
- Rockfield
- Skenfrith

For the purposes of this hydrological analysis the River Monnow and River Wye catchments, in which these study areas are located, will be considered.

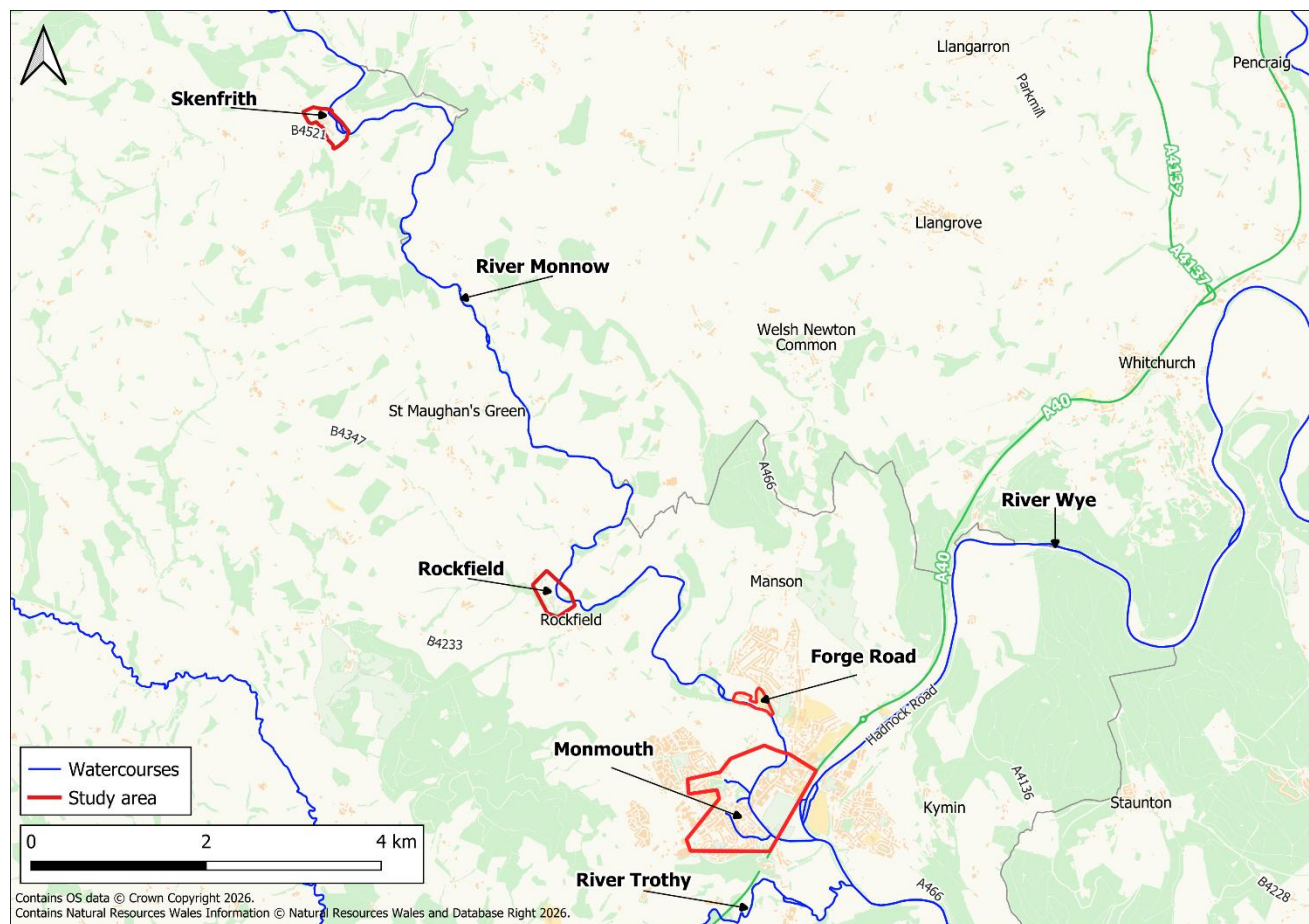


Figure 2-1 Study areas

2.2 Catchment description

The River Wye catchment is large, covering a large part of central Wales and parts of western England, with a catchment area of around 4,000km² just south of Monmouth at the Redbrook gauge. It is largely rural with smaller towns and villages scattered throughout the catchment. Larger settlements include the cathedral city of Hereford and Leominster in

England, and Monmouth, Ross on Wye and Skenfrith in Wales. Monmouth and Skenfrith are the key areas of interest for this study.

The River Monnow flows through Skenfrith, where it is joined by Norton Brook to the northwest of the village, continuing in a southerly direction until it reaches Monmouth. The River Monnow catchment is also largely rural, covering an area of 434km² at the confluence with the River Wye.

At Monmouth the River Wye flows through the eastern part of the town, with the River Monnow joining to the south of the town. Downstream of the Monnow confluence (approximately 700m) the River Trothy joins the Wye before flowing in a southerly direction into the Bristol channel.

3 Available data and quality checks

3.1 Hydrometric gauge data

Gauges within and adjacent to the River Monnow catchment are detailed in Figure 3-1, Figure 3-2 and Table 3-1.

Hydrometric data was supplied by Natural Resources Wales (NRW) for the period 00:00 01/10/2025 to 23:45 31/12/2025, which covers Storm Claudia. The data was supplied with a 15-minute resolution. The data for the wider gauge record was taken from the National River Flow Archive (NRFA) for the flow gauges and the NRW application programming interface (API) for the level gauges. Please note that the API data is unverified and also potentially not available for the full period of record. Not all data received was required for use in this analysis.

Radar rainfall data and soil moisture deficit data was also supplied by NRW for the periods 17:00 13/11/2025 to 06:45 15/11/2025 and 00:00 09/11/2025 to 23:00 16/11/2025 respectively.

The following sections first look at the data for the Storm Claudia event and then at the wider record for the flow gauges relevant to the study area,

3.2 Data quality for the event

3.2.1 Flow and level data

The data for all flow and level gauges listed in Table 3-1 shows no truncation of the peak (i.e. flattening of the hydrograph) or any periods of missing data for Storm Claudia. Most of the gauges show rapid fluctuation in levels around 12th November; when this is compared to rainfall data it correlates to several short sharp bursts of rainfall at this time.

Nothing about the flow and level data shows any cause for concern in terms of its reliability. Data from the Monnow Gate gauge will be used with caution as the local authority has stated that it may not be reliable due to the gauge location downstream of a bridge, but it seems to follow a similar pattern to other gauges in the area.

3.2.2 Rainfall data

The data for all rain gauges listed in Table 3-1 shows no periods of missing data for Storm Claudia. A cumulative plot of the rainfall gauges show that most follow a similar pattern and record a similar level of rainfall (Figure 3-1). The gauges further north show the largest rainfall totals, with those in the south having smaller totals; this fits with what is known of the track of the storm, discussed in Section 4.2.1. The exception to this is the Tal y Maes Main rain gauge which records a small rainfall total compared to the other gauges. This may be because the intensity of the storm was not focused over this area, but this seems unlikely

due to the Vowchurch and Tafalog gauges which are in a similar area recording much greater rainfall values. The data is also marked as suspect in the data file and for these reasons this rain gauge will not be used in this study.

NRW commented that the data from the main gauge at Tafalog was suspect during the event, so data was provided from the backup sensor. They note that the backup sensor is not validated so data should be used with caution. The data does follow the general trend of other gauges in the area but has a somewhat higher cumulative total than Vowchurch.

The Tal y Maes gauge and Tafalog back up sensor have the same grid reference, but different rainfall totals. It is assumed the grid reference provided for the Tafalog back up sensor is incorrect and it is in a similar location as the Tafalog gauge. NRW have since confirmed this is a correct assumption and they will ensure the grid reference is updated.

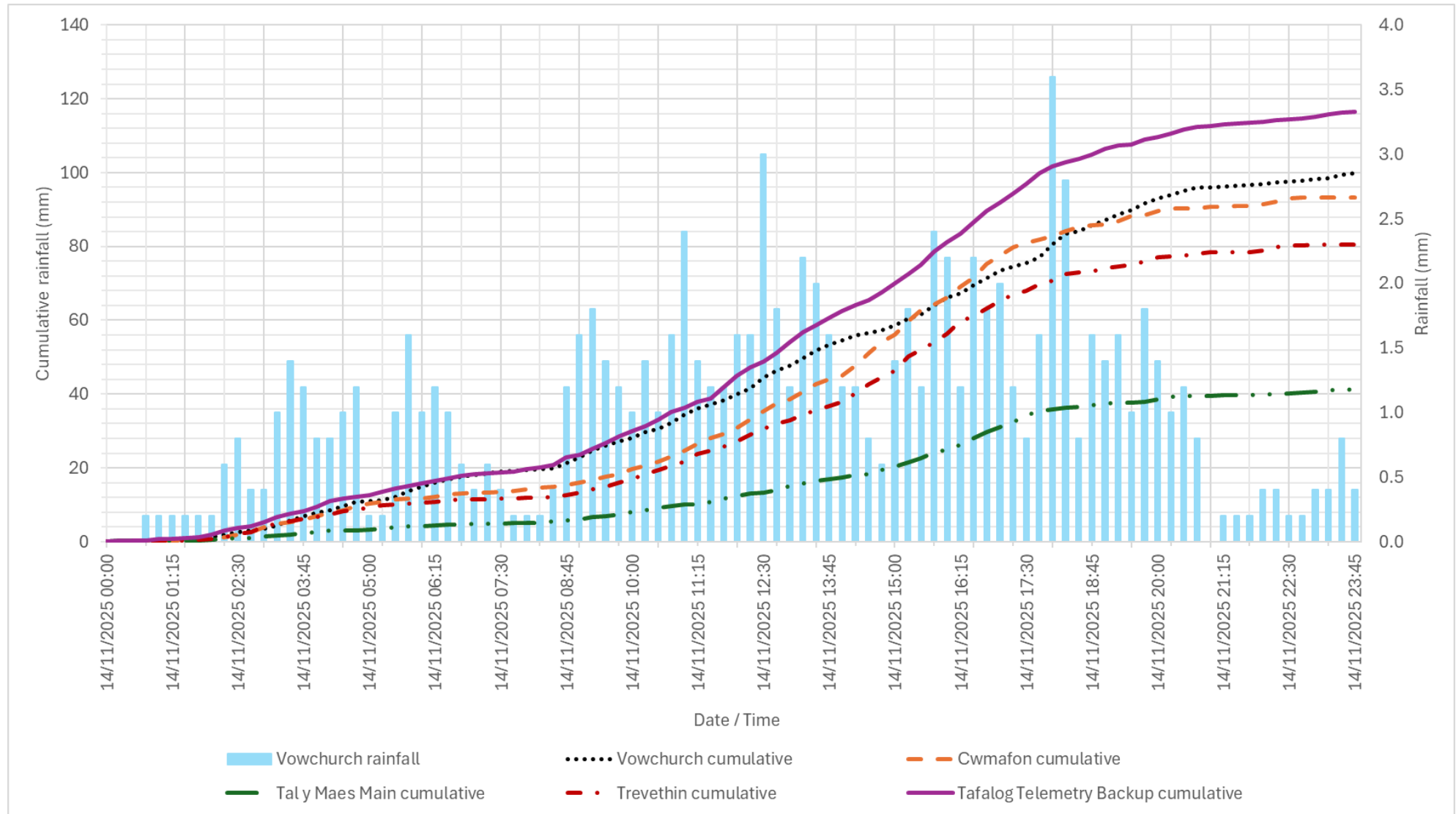


Figure 3-1 Cumulative rainfall data

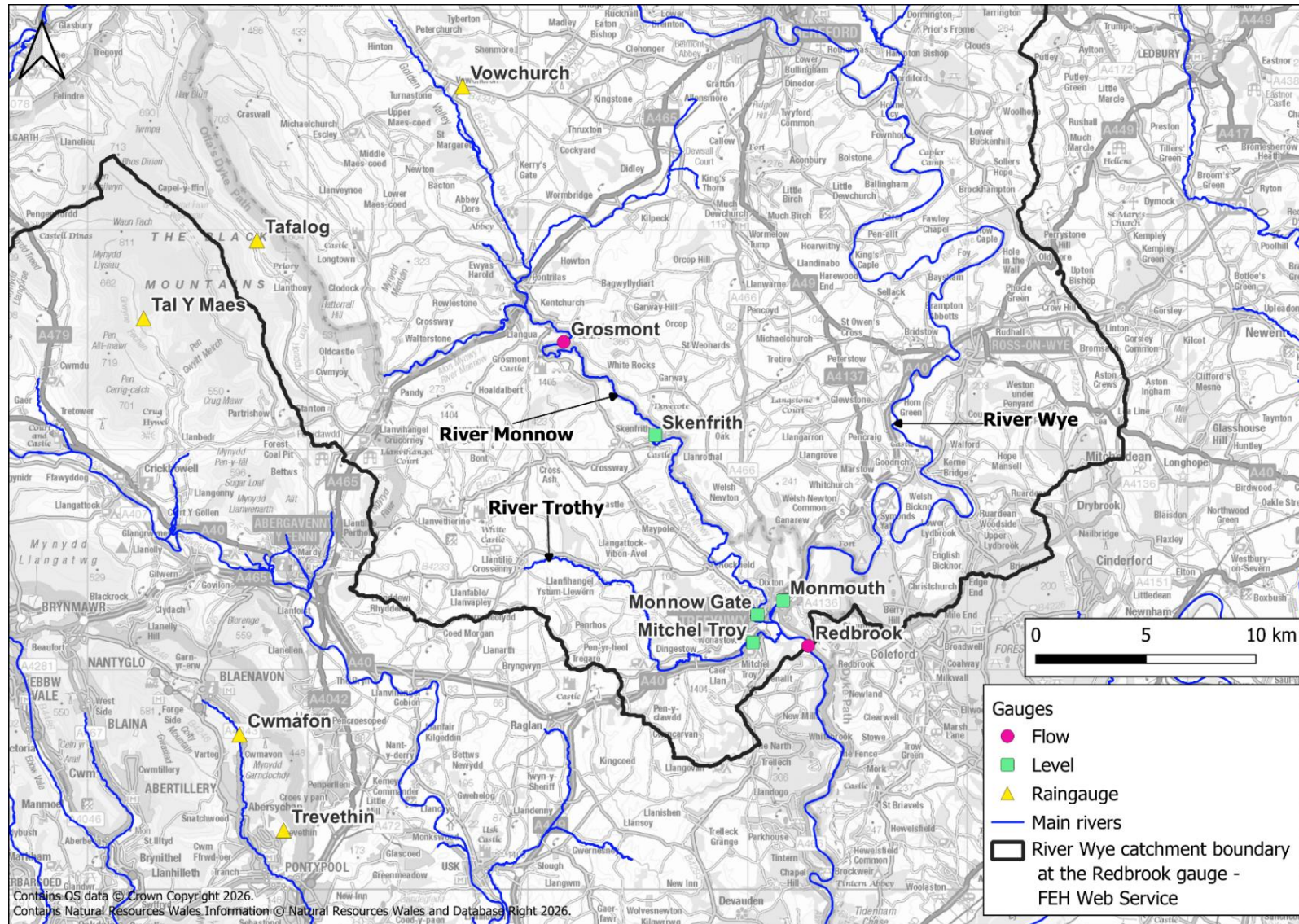


Figure 3-2 Study catchment and gauges

Table 3-1 List of available data

Gauge name	Watercourse	Grid reference	Gauge type	Record length	Comments on data quality
Grosmont	River Monnow	SO4165024890	Flow and Level	01/01/1972 - present day	None
Redbrook	River Wye	SO5276011074	Flow and Level	24/09/1969 - present day	None
Monmouth	River Wye	SO5161913123	Level	01/01/1990 - present day	None
Skenfrith	River Monnow	SO4581020650	Level	01/01/2006 - present day	None
Monnow Gate	River Wye	SO5045012490	Level	01/10/1987 - present day	The local authority highlights that the data from this gauge needs to be read with caution and for readers to be aware that the River Wye and the bridge upstream of the gauge can influence levels on both the upstream and downstream sides of the bridge, meaning it cannot be relied upon to monitor flood levels upstream of the gauge. For example, during a Monnow dominant event the gauge can read 4.5m and water will begin to overtop onto Forge Road and Osbaston Road. During a Wye dominant event, the gauge can read 5m and no overtopping onto these roads has occurred. In addition, during Storm Dennis, this gauge reached 6.57m and no

Gauge name	Watercourse	Grid reference	Gauge type	Record length	Comments on data quality
					overtopping of defences occurred, during Storm Claudia defences started overtopping at approx. 6.45m (peaking at 6.65m) on the upstream side of the gauge and bridge.
Mitchel Troy	River Trothy	SO5025011220	Level	01/01/1975 - present day	None
Cwmfon	N/A	SO2691407036	Rainfall	19/07/2005 - present day	None
Tal y Maes	N/A	SO2255725956	Rainfall	19/07/2005 - present day	None
Trevethin	N/A	SO2892102682	Rainfall	19/07/2005 - present day	None
Tafalog - back up sensor	N/A	SO 2255725956 (Provided on the data file but thought to be incorrect) (Main gauge SO2770329502)	Rainfall	01/10/2025 - 31/12/2025 (may be longer but this was the period of record received)	NRW has commented that the data from the main gauge at Tafalog was suspect during the event, so data was provided from the backup sensor. They note that the backup sensor is not validated so data should be used with caution.

Gauge name	Watercourse	Grid reference	Gauge type	Record length	Comments on data quality
Vowchurch	N/A	SO3705136500	Rainfall	30/11/2001 - present day	This data falls under the remit of the Environment Agency. It was downloaded from the Hydrology Data Explorer ¹ .

¹ <https://environment.data.gov.uk/hydrology/explore>

3.3 Grosmont gauge data analysis

The Grosmont gauge is considered suitable for estimating QMED (the index flood for the Statistical flood frequency estimation method, 50% annual exceedance probability (AEP)) and for use in deriving the growth curve as part of a pooled analysis. See Section 5.2 for further information.

The annual maximum (AMAX, largest flood peak in a given year of record) graph for Grosmont from the NRFA does not highlight any missing or suspect data (Figure 3-3). The orange column in the plot shows that water year² 2025 is incomplete.

The NRFA AMAX series only extends to water year 2023, using NRFA peak flow dataset version 14. The values for water years 2024 and 2025 were added to the series by extracting the AMAX value for these years from the 15-minute flow series for the gauges. Water year 2025 (1st October 2025 to 30th September 2026) is not complete but for the purposes of this assessment it has been assumed that the November 2025 event will be the largest event in the water year.

There are no obvious step changes in the data, and no unusually small values. AMAX values for water years 1979, 1997 and 2007 are very similar but the larger values for 2019, 2024 and 2025 suggest that there is no truncation of peak flows. It is worth noting that the three largest AMAX events in the record have occurred within the last decade. This may suggest an increasing trend in peak flows over the period of record; this has not been statistically assessed for this study. However, the two smallest AMAX events have also occurred since 2010, so perhaps the trend may be more variability in peak flows.

² Defined as the period from 1st October to 30th September for the UK. Water years are used in preference to calendar years to avoid cutting the flow series at a flood-prone time of year.

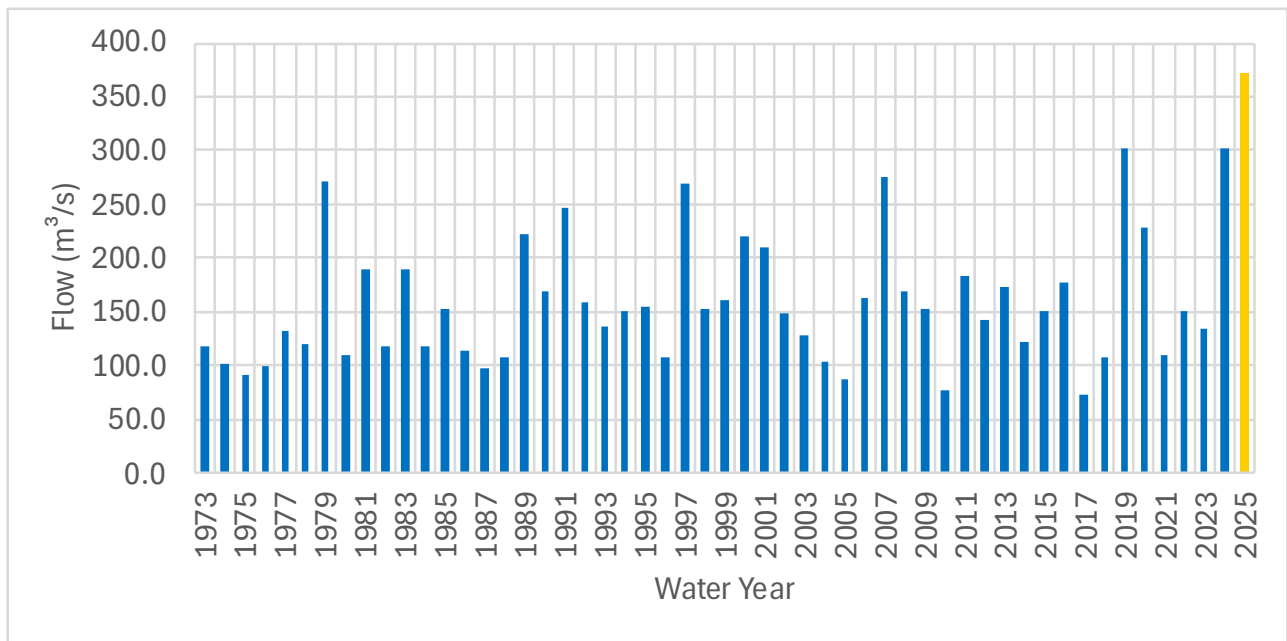


Figure 3-3 AMAX record for Grosmont gauge

A rating curve is used to convert stage values at the gauge to an estimate of flow. There is confidence in the rating up to around the QMED value (~150m³/s). Beyond this there is more uncertainty in the rating as there are few spot gaugings with which to verify it, as shown in Figure 3-4, although the upper limbs of the of the rating are based on hydraulic modelling which may provide some additional confidence. Note: This plot is taken from the NRFA and the largest AMAX value in the record (AMAX1) is based on the record to water year 2023.

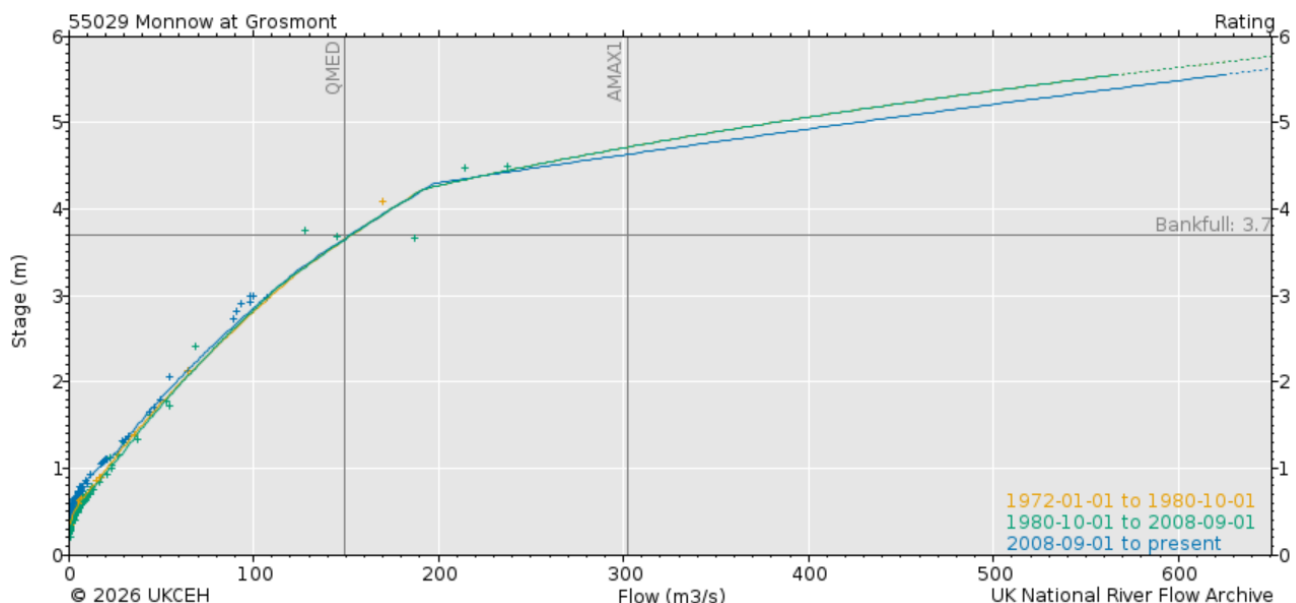


Figure 3-4 Rating curve for the Grosmont gauge (Source: NFRA)

3.4 Redbrook gauge data analysis

Figure 3-5 shows the AMAX series for the Redbrook gauge on the River Wye. There is a substantial amount of missing data for water year 1983 (244 days) and this water year has been rejected on the NRFA (shown by the red column). Water year 2025 is incomplete; shown by the orange column in the figure. No obvious step changes are apparent in the data, and there are no unusually small values. As seen for the Monnow gauge, the data may indicate an increasing trend in peak flows over the period record (not statistically assessed for this study), although in this case only AMAX1 occurs within the last decade. The two smallest AMAX values are within the last decade, similar to Grosmont, hence again perhaps indicating a change in peak flow variability compared to the earlier period of record. The Redbrook gauge is only considered suitable for QMED on the NRFA.

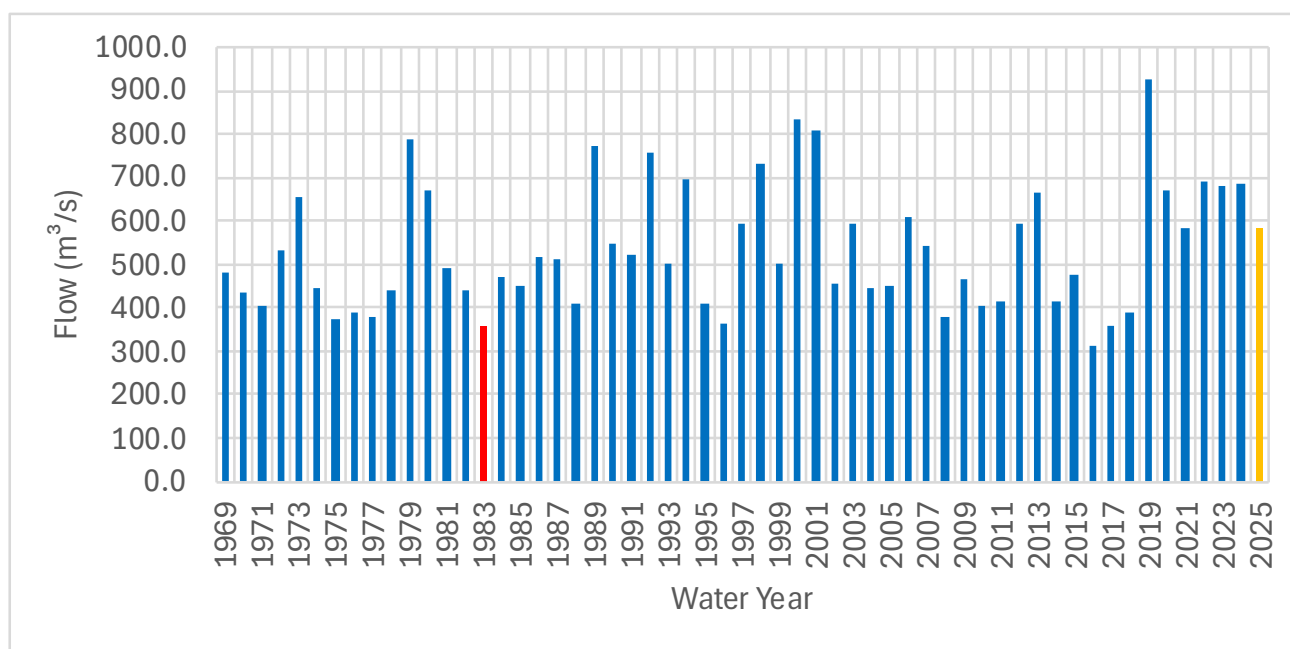


Figure 3-5 AMAX record for Redbrook gauge

There is good confidence in the rating for Redbrook up to a flow of 600m³/s (QMED is ~500m³/s) as it is validated by spot gaugings up to this point, with limited scatter in the gaugings (as shown in Figure 3-6). Beyond this there is more uncertainty in the rating as there are no gaugings to validate the current rating (blue line in Figure 3-6). Note: AMAX1 is correct in this plot as it is water year 2019, which is contained in the NRFA dataset.

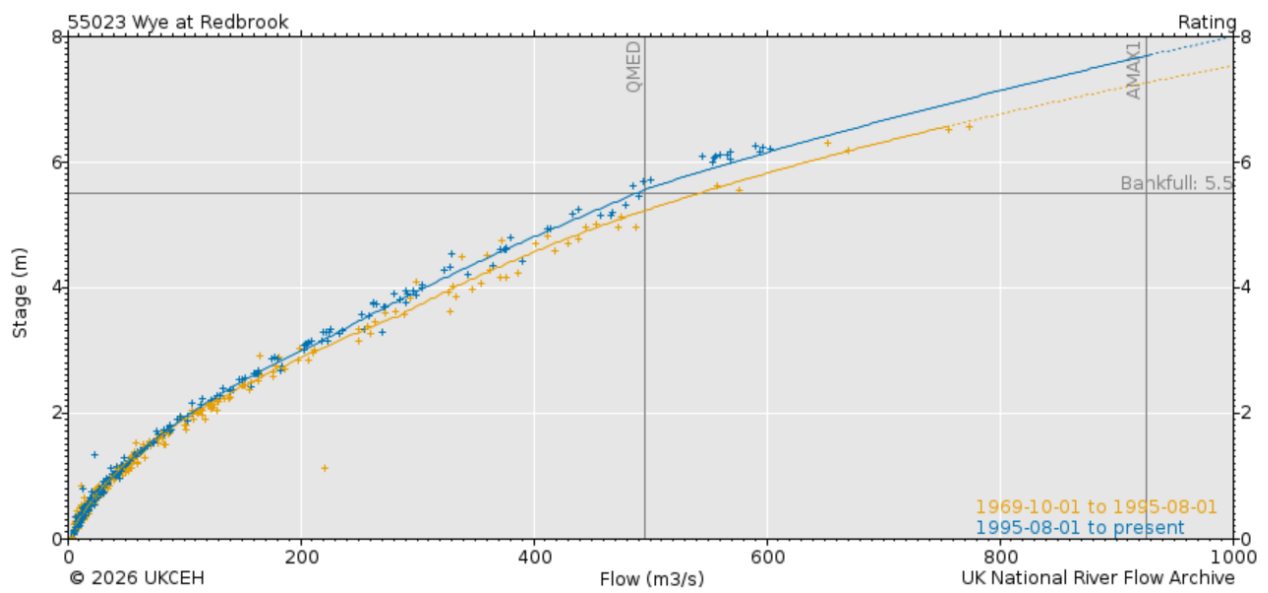


Figure 3-6 Rating curve for the Redbrook gauge (Source: NFRA)

4 Flood event characteristics and catchment response

4.1 Hydrological context for the November 2025 flood event

At the beginning of October 2025 rainfall and catchment wetness were just below normal for the time of year, with many UK river and reservoir levels still recovering from the drought experienced in the summer months. Following unsettled conditions in mid-October, river flows moved to average and above average levels across Wales, Ireland and Western and Northern Scotland. However, the start of November was wetter than average for much of the UK, with flows in many Welsh rivers climbing within the first week of November³.

This can be seen in the study area (Figure 4-1) with rainfall events increasing in mid-October and notably increasing at the start of November. This is reflected by rising river levels during this time. The gauge data shows that most river levels quickly spiked following a rainfall event on 4th November, with consistent periods of rainfall leading up to Storm Claudia preventing river levels from recovering prior to this event.

The Vowchurch rain gauge (National Grid Reference (NGR) SO3705136500) was used to provide representative rainfall for the Storm Claudia event in this analysis.

³ <https://nrfa.ceh.ac.uk/nhmp/monthly-hydrological-summary-uk> October and November 2025

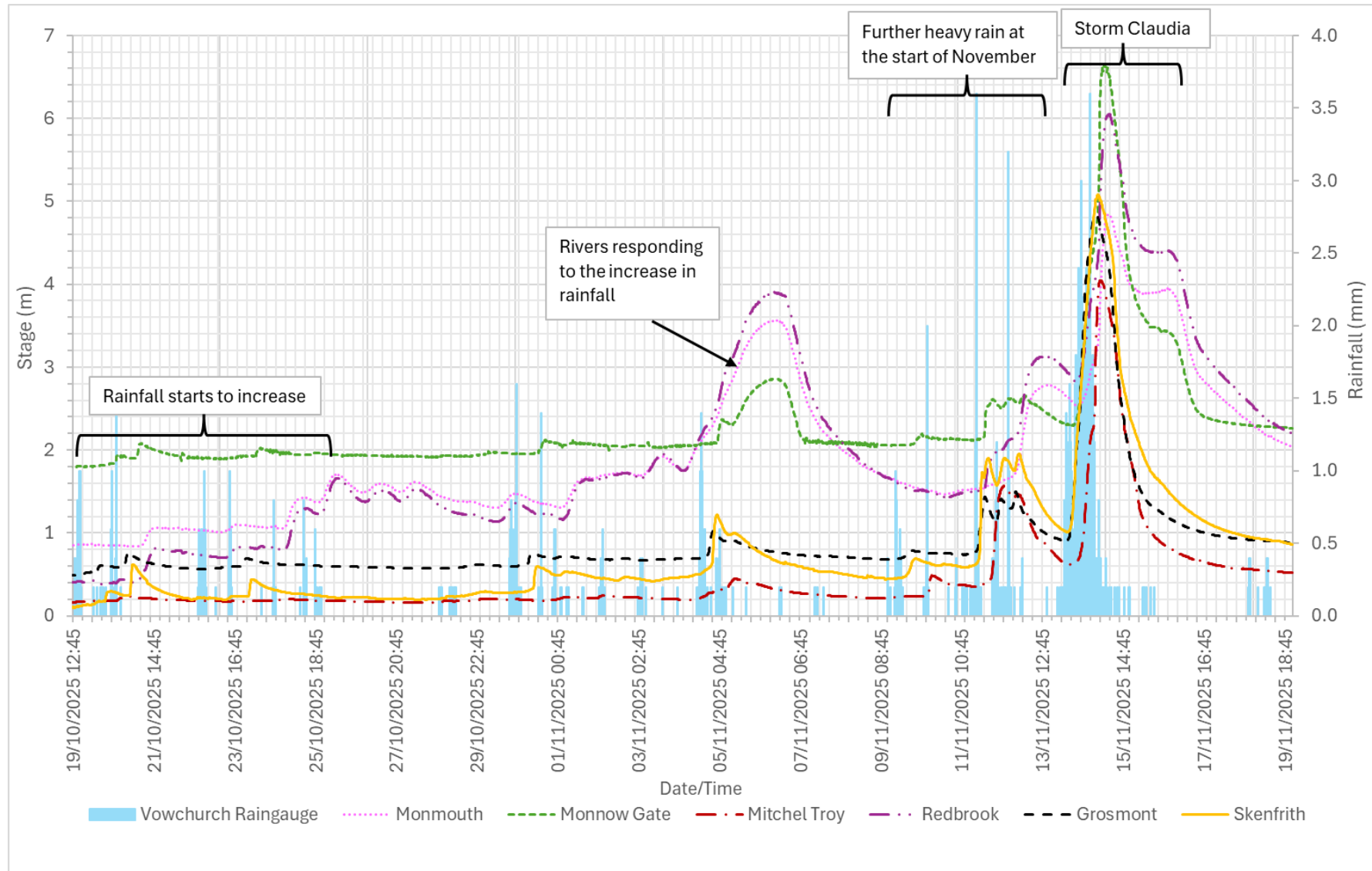


Figure 4-1 October 2025 - 1 month leading up to the event

4.2 Storm Claudia

4.2.1 Rainfall

Storm Claudia reached the UK in the early hours of 14th November with most rain gauges assessed in this study recording an increase in rainfall between 00:45 on 14th November to 04:15 on 15th November (27.5hrs). Table 4-1 shows how rainfall between the gauges varies during this time. As discussed earlier, the Tal y Maes rain gauge is not included in this assessment due to suspect data.

The Tafalog back up gauge recorded the highest total rainfall closely followed by Vowchurch. Both are located to the north of Monmouth and the Grosmont river gauge. By comparison the Cwmafon and Trevethin gauges, located to the west of Monmouth, record slightly less rainfall. This suggests that the intensity of the storm was focused more to the north. Unusually, Cwmafon gauge reports the highest hourly rainfall intensity values out of the four rain gauges, although all four gauges report similar figures. It should be noted that the Cwmafon data is flagged as 'Suspect' in the datafile supplied by NRW

Table 4-1 Rainfall data analysis

	Cwmafon	Trevethin	Tafalog back up gauge	Vowchurch
Total rainfall (mm)	94.2	82.6	118.4	103.8
Maximum 15 min rainfall (mm)	3.6	3.8	3.8	3.6
Maximum hourly intensity (sliding scale) (mm/hr)	12.2	10.0	11.6	8.8

A report by the Met Office on Storm Claudia⁴ identifies that although South Wales has experienced several significant flood events in recent years, these were a result of a more typical westerly or south-westerly airflow, with the corresponding wettest areas further west in the Brecon Beacons. What made Storm Claudia unusual was the south-easterly direction of airflow. With the Black Mountains in the upper catchment of the Monnow being the first significant high ground an airflow from this direction would meet, this will have been the critical factor causing the very high rainfall totals in this area and consequent downstream flooding in Monmouth from the Monnow.

Note: The Vowchurch rain gauge data has been used to represent the rainfall for the study area for figures in this report. This data may not be entirely representative of the rainfall

4

https://weather.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2025/2025_06_storm_claudia.pdf

over the Monnow catchment to Monmouth and particularly not for the Wye due to the much larger catchment area.

Radar rainfall data

Radar rainfall data was received from NRW for the period 13th November 17:00 to 15th November 06:45. Table 4-2 shows screen shots of the data at regular intervals between the start and end of Storm Claudia. The red outline on the maps indicates the Monnow catchment to the Grosmont gauge. The scale used for the graphs is shown in Figure 4-2. The radar data shows how the storm moves across Wales with the intensity of the rain focused on the Monnow catchment on several occasions, particularly at 10:45, 12:00 and 18:00 on 14th November.

The data shows that for 19hrs from 02:00 to 21:00 on 14th November the catchment constantly remains in the green, yellow, red colourings on the intensity scale (0.5 to 8mm/hr), whereas the areas around the catchment fluctuate between this colouring and the blue shadings (down to 0.031mm). This shows that the intensity of the storm was focused over the Monnow catchment, with little reduction in rainfall intensity. It also explains why the rain gauges to the west of Monmouth (Cwmafon and Trevethin) recorded less rainfall than the ones to the north (Tafalog back up gauge and Vowchurch).

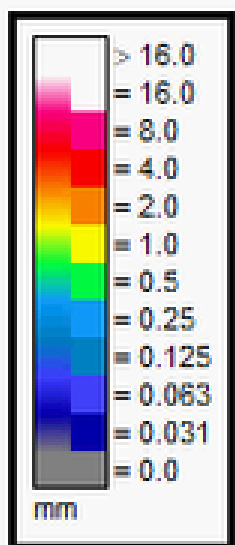
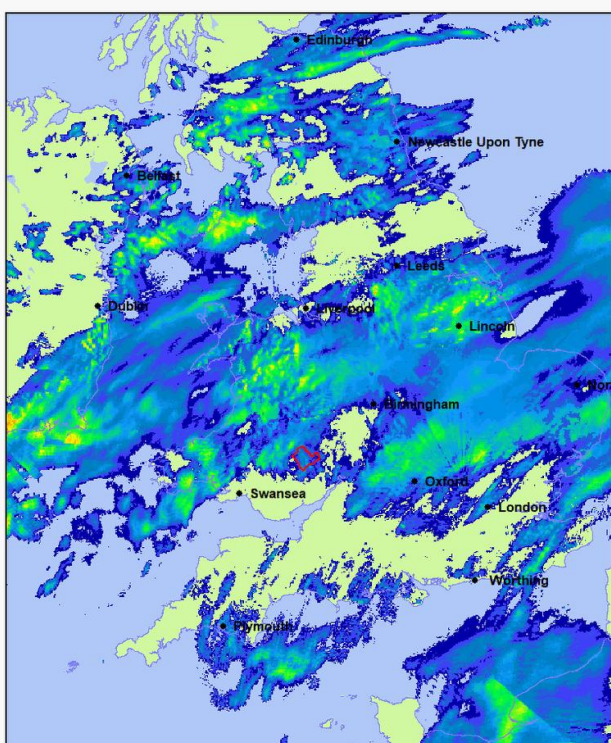
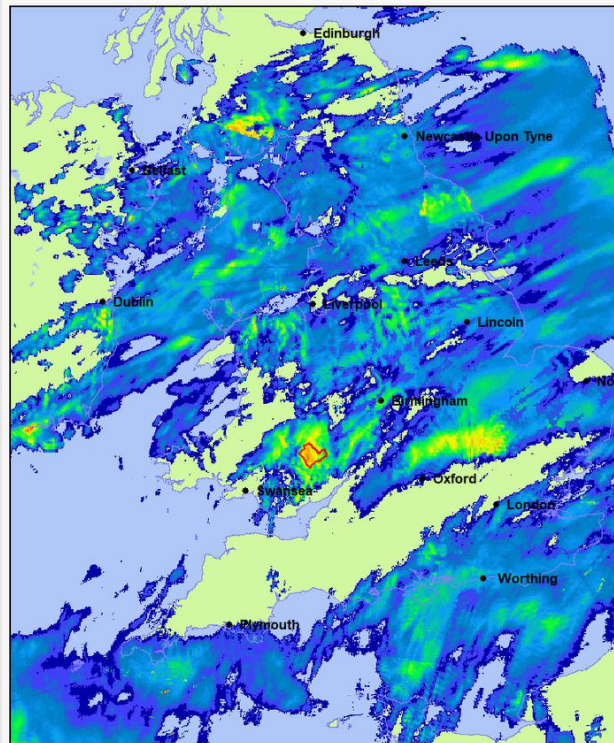


Figure 4-2 Scale used for the Radar rainfall data

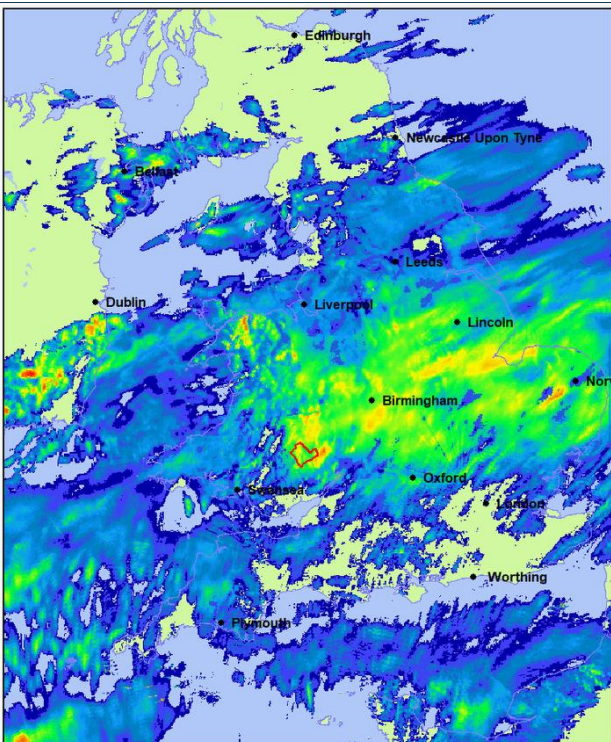
Table 4-2 Radar data showing the propagation of Storm Claudia



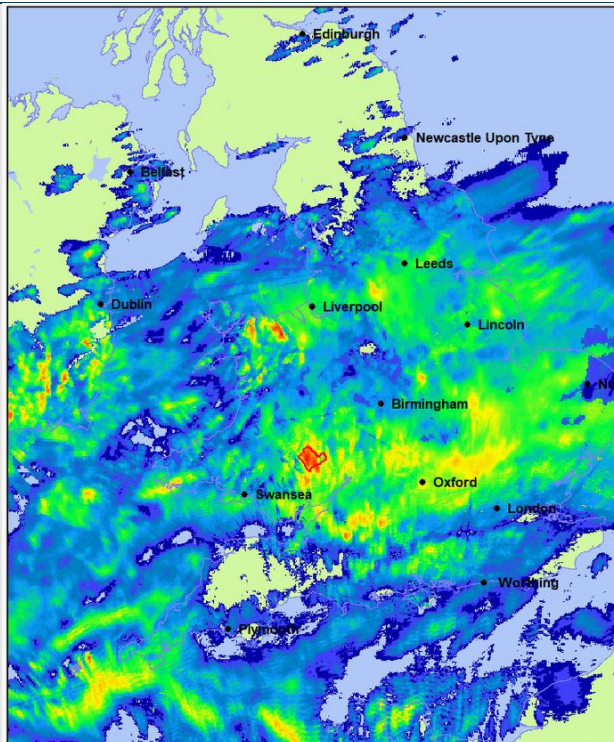
1. 00:45 14th November - Start of Storm Claudia



2. 03:30 14th November

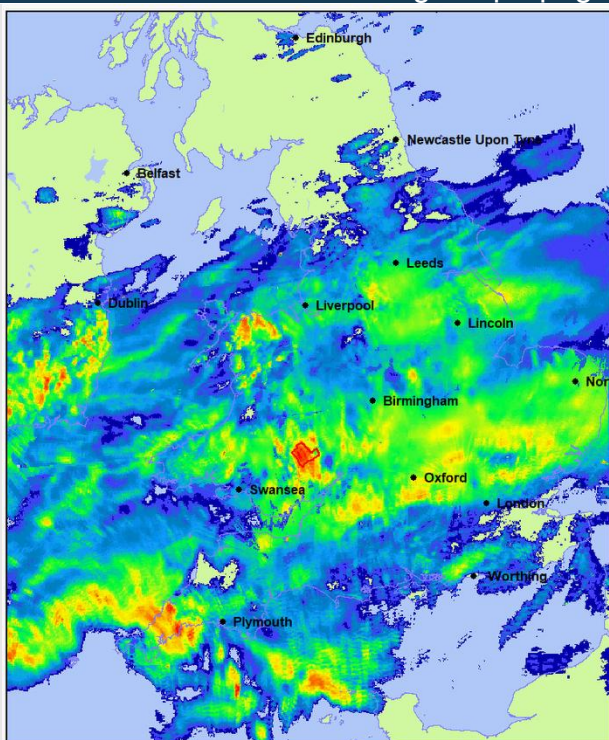


3. 06:45 14th November

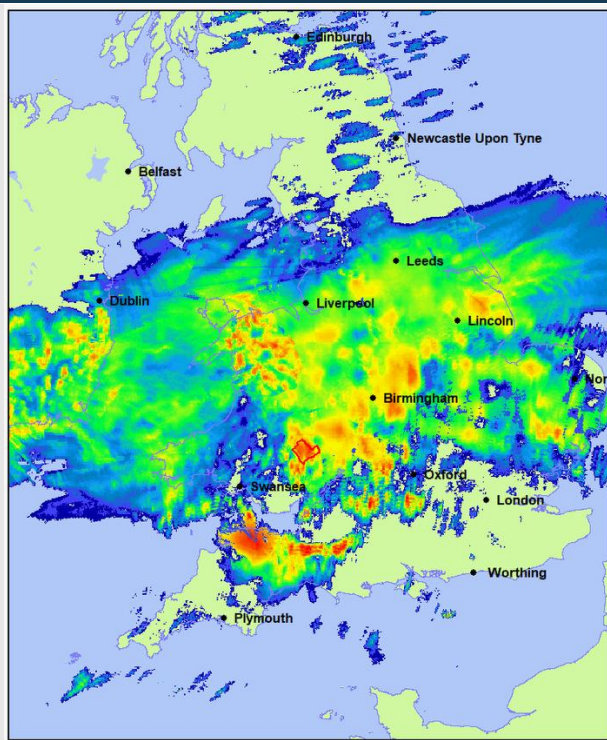


4. 10:45 14th November

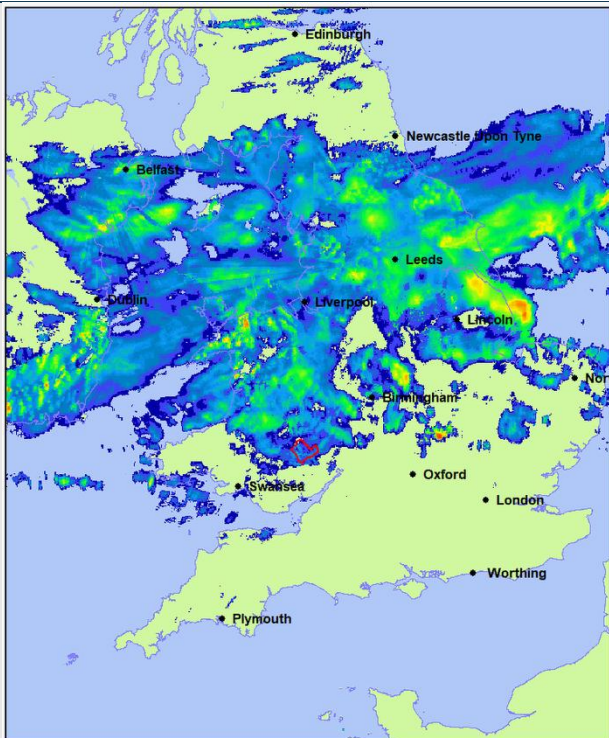
Table 4-2 Radar data showing the propagation of Storm Claudia



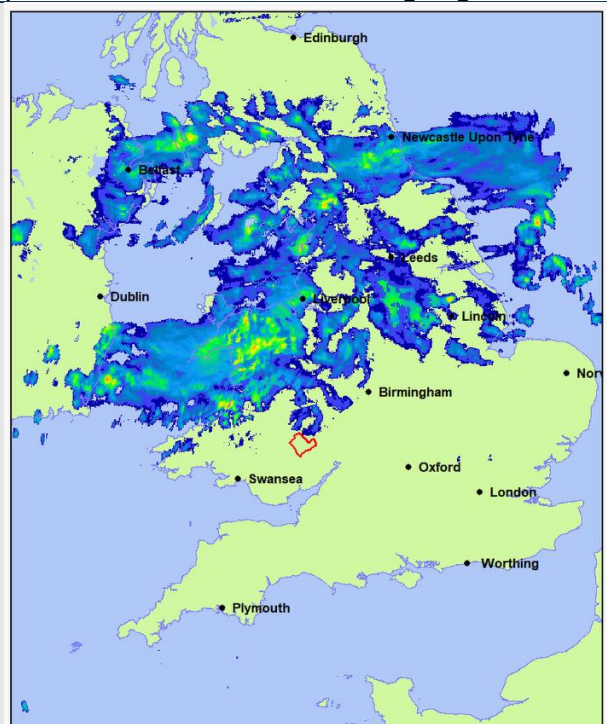
5. 12:00 14 November



6. 18:00 14th November – largest rainfall peak at the Vowchurch rain gauge



7. 00:00 14th November



8. 04:15 15th November - End of Storm Claudia

4.2.2 Soil moisture deficit data

Soil moisture deficit (SMD) data was received from NRW for the period 9th November 2025 to 16th November 2025 for the "Lower Wye: Grosmont" catchment and is plotted in Figure 4-3. SMD values are around 33mm at the start of the period of record assessed. As the area received multiple rainfall events the SMD value begins to decrease; 16.7mm at the start of Storm Claudia. This indicates a wet catchment with limited soil storage space for water. By the end of Storm Claudia SMD had reduced to 3.7mm.

Note that SMD data is for the catchment to the Grosmont gauge so may not be completely representative of the conditions in the upper part of the catchment or lower catchment at Monmouth.

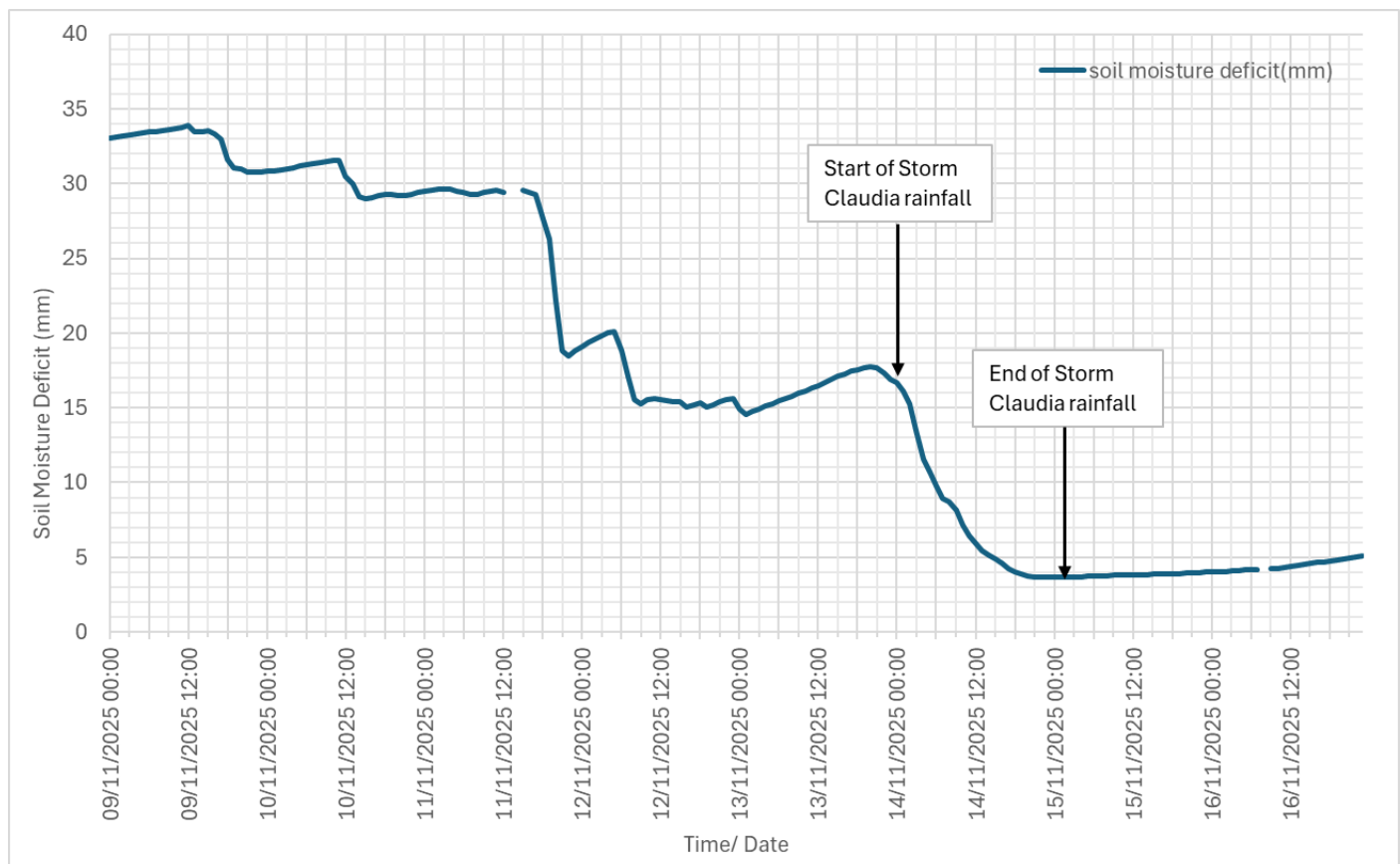


Figure 4-3 SMD data for the "Lower Wye: Grosmont" catchment

4.2.3 Rivers

The Grosmont and Skenfrith gauges on the River Monnow were first to respond approximately 5hr after the start of the rainfall, with the Monnow Gate gauge starting to respond about 4hr later, as the flood wave propagated downstream (Figure 4-4). At the Grosmont gauge the hydrograph peaked at 21:30 on 14th November, with the travel time of the peak between Grosmont and Skenfrith being 1.75hr, and 3.5hr between Skenfrith and Monnow Gate. At all Monnow gauges the time between the initial response of the river to the peak is about 18hr.

The rising limb also shows a difference between the gauges on the middle and lower Monnow. Grosmont and Skenfrith (middle Monnow) show a fairly uniform rate of rise, whereas Monnow Gate (lower Monnow) has a shoulder. It is understood from information from NRW that this pattern occurs in other Monnow dominated events and although not substantiated, it is possible this is due to the influence of floodplain storage between Skenfrith and Monmouth.

The recession of the flood hydrograph from the peak is about 32hr for Grosmont and Skenfrith. The hydrograph for the Monnow Gate gauge is slightly different to the other hydrographs for the Monnow, with a 'shoulder' being seen on the falling limb. The cause of this is unclear but it is a feature which is also seen in the data for the Wye gauges (Monmouth and Redbrook), occurring at the same time and for other large events in the record.

Since the above was written it is understood from NRW that the shoulder on the falling limb at Monnow Gate is the influence of the peak at the River Wye which occurs much later than the Monnow, owing to the travel time of the significantly larger Wye catchment. Elevated levels in the Wye cause a backing up in the Monnow which slows the recession or can create a second peak when the Wye also experiences a more notable event.

It was reported by residents in Rockfield, Forge Road and Monmouth that there was a surge of water just before the onset of flooding at these locations. Figure 4-5 shows this rapid increase in water level from 4.84m to 6.54m in just 2 hours at the Monnow Gate gauge. At this stage it is unknown why this surge occurred.

Figure 4-6 shows that the Monmouth and Redbrook gauges on the River Wye start to respond approximately 10hr after the start of the rainfall, although it must be remembered that the Vowchurch rainfall data is unlikely to be representative of the Wye catchment. The hydrograph peak at the two gauges occurs at the same time (05:45) on 15th November. It would generally be expected that the downstream gauge (Redbrook) would peak later than the upstream gauge (Monmouth). However, the contribution of the Monnow flood hydrograph between the two gauges could be affecting this. The 'shoulder' on the falling limb, discussed previously, can clearly be seen in Figure 4-6 for both gauges.

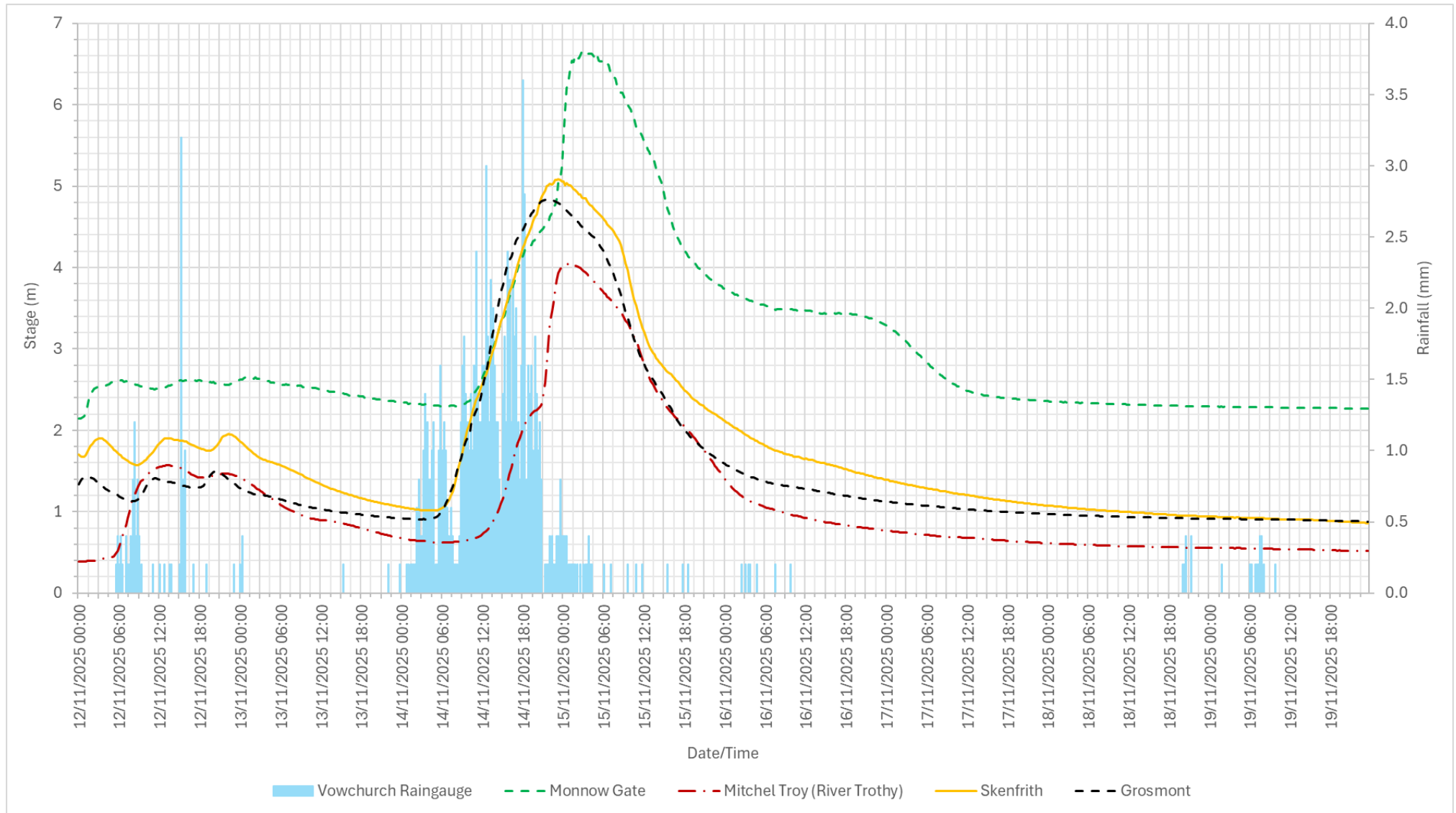


Figure 4-4 Storm Claudia - River Monnow

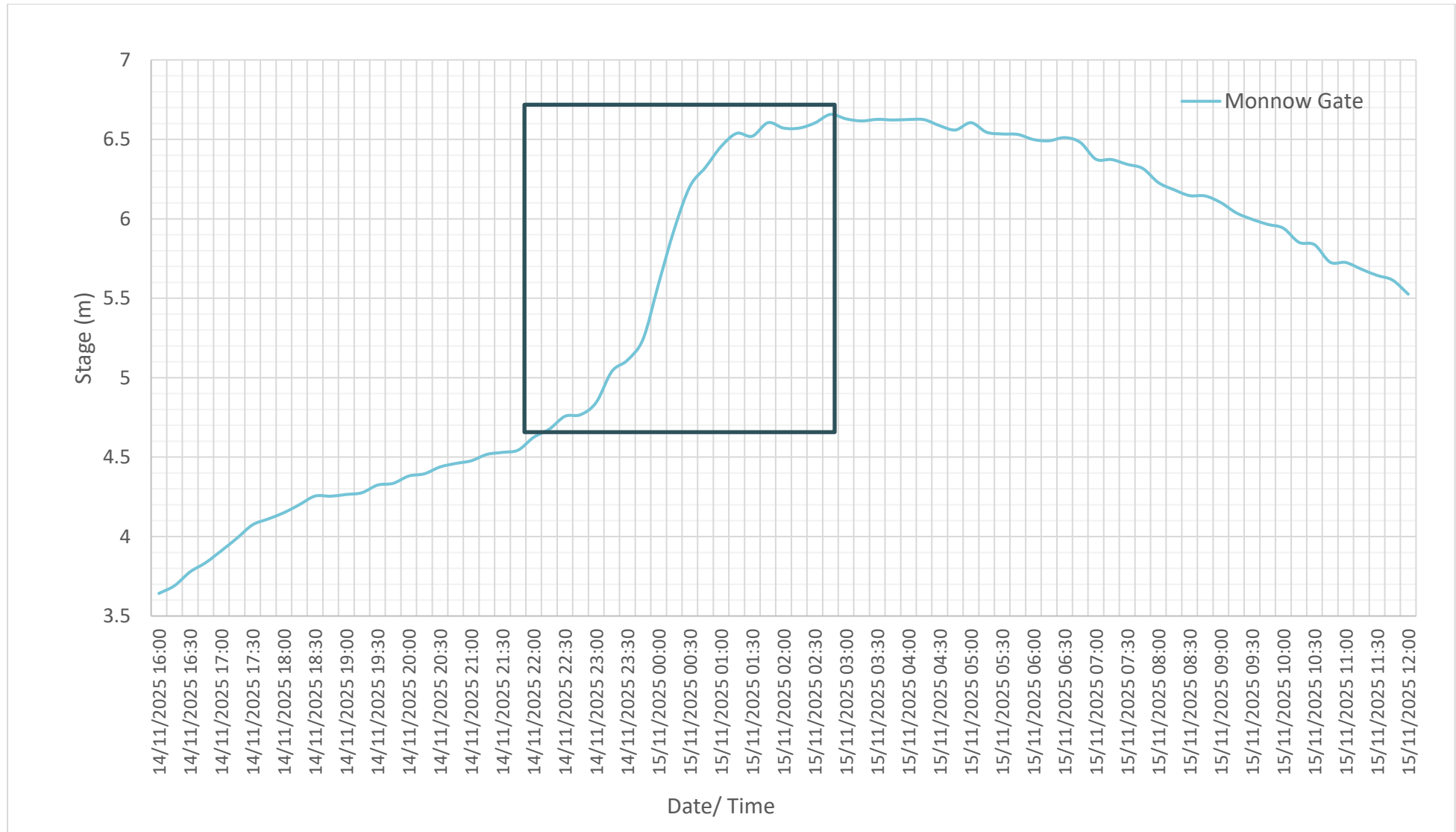


Figure 4-5 Monnow Gate surge in water levels

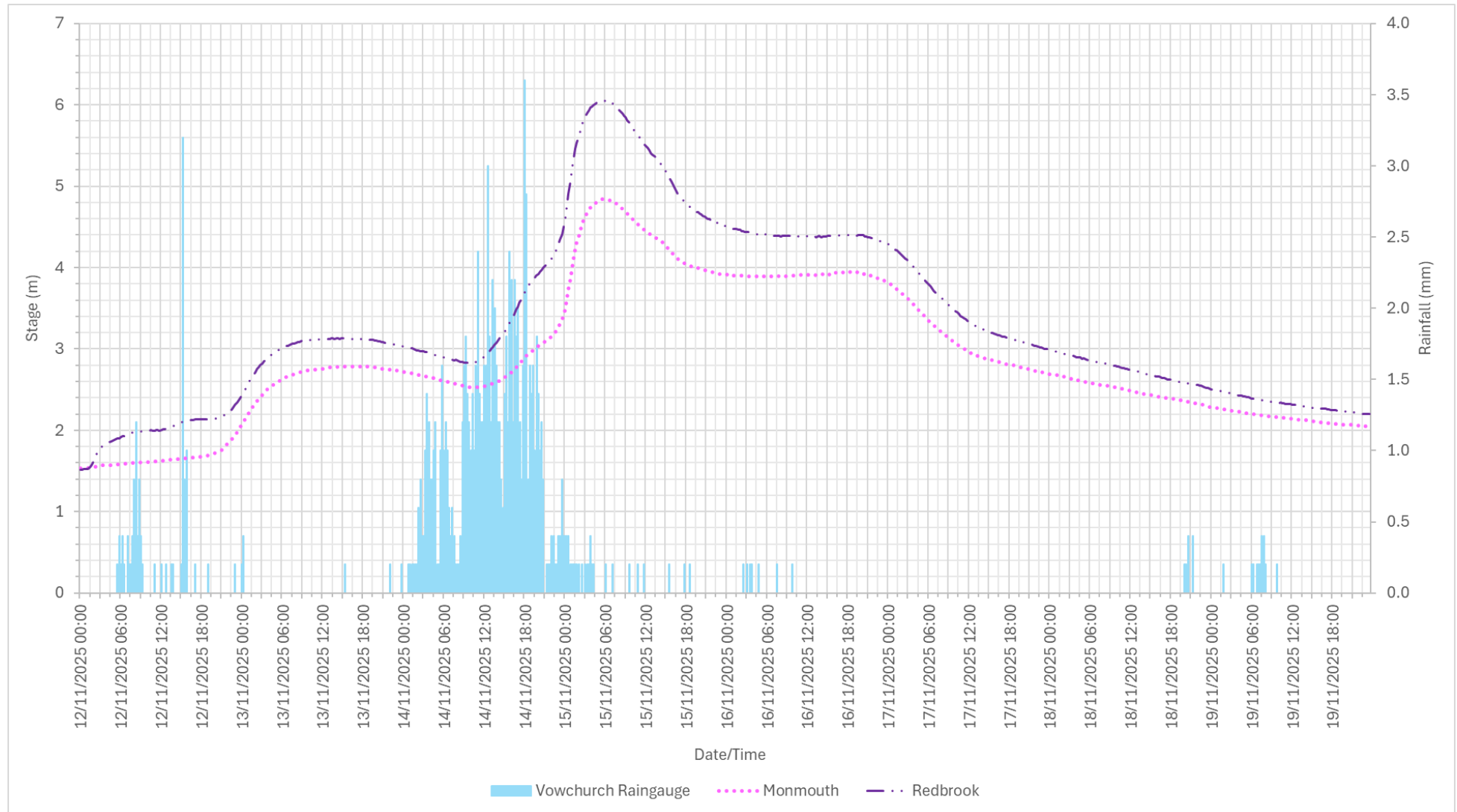


Figure 4-6 Storm Claudia - River Wye

4.3 Event ranking

To provide an assessment of the severity of Storm Claudia within a historical context, the exceedance of the event within the record for the Grosmont and Redbrook flow gauges was assessed. These gauges have the longest records on the Monnow and Wye, respectively, of those included in Table 3-1.

As can be seen from Table 4-3 the record length for the gauges is similar, providing a useful comparison between the gauges. Table 4-3 shows that, over a similar period of record, the November 2025 flood event is the largest within the Grosmont record, but a much smaller magnitude event on the Wye at Redbrook. This is not unexpected as the Wye catchment at Redbrook is over ten times larger than the Monnow catchment at Grosmont. It is likely that the impacts of Storm Claudia were limited to only a relatively small part of the Wye catchment, with the remainder not affected by the high rainfall totals.

Table 4-3 November 2025 event AMAX rank

Gauge	AMAX rank	Record length	Period of record (water year)
Grosmont	1	53	1973-2025
Redbrook	21	57	1969-2025 (Note: 1983 rejected in NRFA)

5 Flood frequency estimation approaches

5.1 Overview

There are several approaches which can be used to derive an estimate of flood frequency from which to assess the rarity of a flood event. Assessing flood frequency from data is preferable as there are more approaches to use and some which are not only reliant on data at the gauge of interest.

The inference of flood rarity from rainfall data is seldom accurate, as treating rainfall rarity as a measure of flood rarity neglects the complex scenarios leading to flood formation. The assessment may overestimate flood rarity, especially when applied to mixed geology or mixed land use catchments. On typically impermeable catchments, which are heavily urbanised or steep, or a combination of both, it may be possible to infer something more useful about flood rarity from rainfall data. This is because any heavy rainfall event produces a flood and because other processes (such as snowmelt and groundwater) are too slow to be relevant. However, it can be useful to estimate the rainfall rarity for comparison with the flood event rarity to provide more context for the event.

Rarity is expressed here as an AEP, which is the probability of a flood happening in any one year. The larger the percentage, the greater the chance of that flood occurring.

5.2 Flood frequency estimation

Flood frequency estimation is normally carried out on a flow peak series (Statistical method). An estimate is made of the index flood, QMED (median annual maximum flood), which is multiplied by growth factors from an estimated growth curve, to generate the flood frequency curve. QMED has an AEP of 50%.

The growth curve can be estimated using single-site analysis, using data only from the gauge site of interest, or pooled analysis, which 'pools' data from hydrologically similar sites, providing more data and enabling more reliable estimates of the growth curve for rarer floods to be made. Single-site analysis is appropriate when there is a reliable and long record at the gauge site and when the record length is longer than the AEP event of interest.

When undertaking frequency analysis, if the frequency of a specific flood event needs to be determined, consideration must be given to whether to include or exclude that event from the analysis. It is most common to estimate the frequency of a flood in its immediate aftermath. This risks introducing bias; the study is only being carried out because a large flood has occurred. Including the event is relevant to moving forward, for example, to assess what new flood management scheme, or what updating of the flood risk map, might be required. Excluding the event would be proper, for example, in any dispute that sought to make or defend an accusation of negligence concerning the flood of interest. Guidance⁵

⁵ Environment Agency. September 2025. Flood Estimation Guidelines. Version 10.

recommends that, as a simple sensitivity test, the analysis is repeated with the recent event excluded from the fitting of the flood frequency curve.

For the Grosmont and Redbrook gauges frequency analysis was undertaken using two approaches to derive the growth curve from the AMAX data:

- Single-site analysis (SS)
- Enhanced single-site analysis (ESS), whereby the gauge at the site of interest is given greater weight*

On the NRFA, the Redbrook gauge is not classed as suitable for inclusion within pooled analysis. It was thought useful to include it for this analysis, but an additional approach was also tested whereby the gauge was not included in the pooling group (ungauged, UP).

All these analyses were undertaken with the November 2025 event included and excluded to determine the impact on the frequency estimate. In addition to the flood frequency estimation approaches using a flow peak series, the flood frequency curve was also derived using a rainfall-runoff model (ReFH2) for comparison.

*Note that the ESS method uses the latest FEH25 statistical method. The weighting given to the gauge in FEH25 is reduced compared to FEH08.

5.3 Grosmont gauge analysis

Growth curves for both approaches were derived using the Generalised Extreme Value (GEV) distribution. The Pearson Type 3 (P3) distribution gives the best fit to the data for the ESS analysis, but this is an unusual distribution for UK catchments and tends to generate smaller growth factors than other distributions. GEV also gave an acceptable fit to the data and was selected in preference to P3. The other two distributions commonly used to derive UK catchment growth curves, Generalised Logistic (GL) and Kappa 3 (KAP3), did not give an acceptable fit to the data. These distributions generate larger growth factors than the GEV distribution, hence larger flows. The GEV distribution also appeared to give the best fit to the data for the ESS analysis.

Table 5-1 provides the peak flow estimates for a range of AEP events for each of the approaches, excluding and including the Storm Claudia event. Single-site analysis results are more uncertain for events less frequent than 2% AEP, based on the record length. The peak flow at Grosmont for the Storm Claudia event was 372m³/s. The AEP events between which this flow occurs for each approach are highlighted in the table. It should be borne in mind when looking at these results that there will also be considerable uncertainty in the estimate of peak flow for the Storm Claudia event. The rating curve used to convert stage values to flow estimates is only verified by spot gaugings to about 238m³/s, much smaller than the Storm Claudia event flow. Therefore, any frequency estimate can only be indicative.

Table 5-1 Grosmont gauge frequency estimates

AEP (%)	SS Exc. Nov 25 (m³/s)	SS Inc. Nov 25 (m³/s)	ESS Exc. Nov 25 (m³/s)	ESS Inc. Nov 25 (m³/s)	ReFH2 (m³/s)
50	150	151	150	151	63
20	204	209	212	214	83
10	242	252	255	258	97
5	281	298	298	302	111
4	294	313	312	317	115
3.33	305	326	324	329	119
2	335	364	356	363	131
1.33	360	396	382	390	141
1	379	420	401	410	148
0.5	425	481	448	459	168
0.1	542	646	563	582	226

The following conclusions may be drawn from the results in Table 5-1:

- The Statistical method approaches give relatively consistent results for the frequency of the Storm Claudia event, indicating that it is likely to be of the order of the 2% to 1.3% AEP event.
- There is little or no impact on the frequency estimate for Storm Claudia by excluding the event from the analysis.
- Excluding Storm Claudia suggests a slightly less frequent event for the single-site analysis but the single-site analysis results are uncertain at this frequency.
- ReFH2 results suggest a very rare event, less frequent than the 0.1% AEP event. This does not seem sensible. The 50% AEP event ReFH2 estimate is much smaller than that from the Grosmont gauge data. As there is good confidence in the 50% AEP event (QMED) estimate from the gauge data, it is suggested that the ReFH2 estimates are substantially underestimated and should be ignored.

5.4 Redbrook gauge analysis

Growth curves for all approaches were derived using the GEV distribution. This was the best-fit distribution for the ESS and UP analyses; GL and KAP3 did not give an acceptable fit to the data. GL and KAP3 generate larger growth factors than the GEV distribution,

hence larger flows. The GEV distribution also appeared to give the best fit to the data for the SS analysis.

Table 5-2 provides the peak flow estimates for a range of AEP events for each of the approaches, excluding and including the Storm Claudia event. Single-site analysis results are more uncertain for events less frequent than 2% AEP, based on the record length. Only one set of results is provided for UP. There was minimal change to the QMED estimate when the Storm Claudia event was excluded from the dataset, and the results are essentially the same as when the event is included.

The peak flow at Redbrook for the Storm Claudia event was 583m³/s. The AEP events between which this flow occurs for each approach are highlighted in the table. The rating curve used to convert stage values to flow estimates is verified by spot gaugings to around 600m³/s, hence there should be reasonable confidence in the estimate of peak flow for the Storm Claudia event at the Redbrook gauge.

Table 5-2 Redbrook gauge frequency estimates

AEP (%)	SS Exc. Nov 25 (m ³ /s)	SS Inc. Nov 25 (m ³ /s)	ESS Exc. Nov 25 (m ³ /s)	ESS Inc. Nov 25 (m ³ /s)	UP (m ³ /s)	ReFH2 (m ³ /s)
50	500	500	500	500	500	511
20	629	628	648	648	651	633
10	718	715	745	745	748	722
5	805	800	839	838	837	813
4	833	827	868	867	865	841
3.33	856	850	892	891	887	869
2	922	913	959	957	948	945
1.33	974	963	1,012	1,008	995	1010
1	1,012	999	1,049	1,045	1,028	1057
0.5	1,104	1,085	1,138	1,133	1,105	1179
0.1	1,325	1,294	1,342	1,334	1,275	1497

The following conclusions may be drawn from the results in Table 5-2:

- The Statistical method approaches give consistent results for the frequency of the Storm Claudia event, indicating that it is likely to be of the order of the 50% to 20% AEP event.
- There is no impact on the frequency estimate for Storm Claudia by excluding the event from the analysis.
- ReFH2 results suggest a similar frequency to that from the Statistical method.

- The frequency of the event on the Wye at Redbrook is much greater than for the Monnow at Grosmont. This is supported by the information from the Met Office document discussed in Section 4.2.1.

5.5 Rainfall return period estimation

The total rainfall depths and duration of rainfall detailed in Section 4.2.1 were input into the FEH Web Service Depth-Duration-Frequency (DDF) model to provide frequency estimates for the rainfall event.

Table 5-3 Rainfall return period estimation

	Cwmafon	Trevethin	Tafalog back up gauge	Vowchurch
AEP (%)	9	14	0.6	0.5

There is a large variation in the frequency estimates for the gauges, with Cwmafon and Trevethin indicating a relatively frequent event, whereas the Tafalog back up gauge and Vowchurch indicating a rare event. This supports the theory in Section 4.2.1 that the intensity of the storm was focused to the north of the Monmouth.

6 Summary

- The analysis has shown that the frequency estimate for Storm Claudia on the River Monnow is between 2% and 1.3% AEP and on the River Wye is between 50% and 20% AEP. This aligns with the anecdotal data from the local authority that flooding was largely if not wholly from the River Monnow rather than the River Wye.
- The rainfall data suggests a frequency of around the 14% AEP and 9% AEP at the Trevethin and Cwmafon gauges, respectively, but 0.6% AEP and 0.5% AEP at the Tafalog back up gauge and Vowchurch gauge, respectively. This suggests that the storm was centred to the north of Monmouth. This is supported by radar rainfall data which shows that for 19hrs the Monnow catchment received intense rainfall. Catchments surrounding the Monnow did not receive the same intensity rainfall.
- It is not possible to correlate rainfall and flow frequency estimates but the estimates for the rain gauges to the north of Monmouth and those for the Grosmont flow gauge both indicate a significant event.
- The rating curve used to convert stage values to flow estimates for the Grosmont gauge is only verified by spot gaugings to about 238m³/s, much smaller than the Storm Claudia event flow. Therefore, any frequency estimate can only be indicative. However the rating is supported at higher flows by hydraulic modelling outputs so that may provide some additional confidence.
- One limitation of the analysis is that there is not a flow gauge on the Monnow at Monmouth. It has been assumed that Grosmont should be reasonably indicative.
- A combination of an extreme rainfall event concentrated within the Monnow catchment and wet antecedent conditions is likely to have exacerbated flooding to Monmouth and Skenfrith.

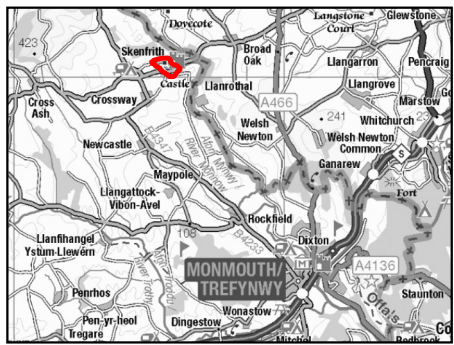
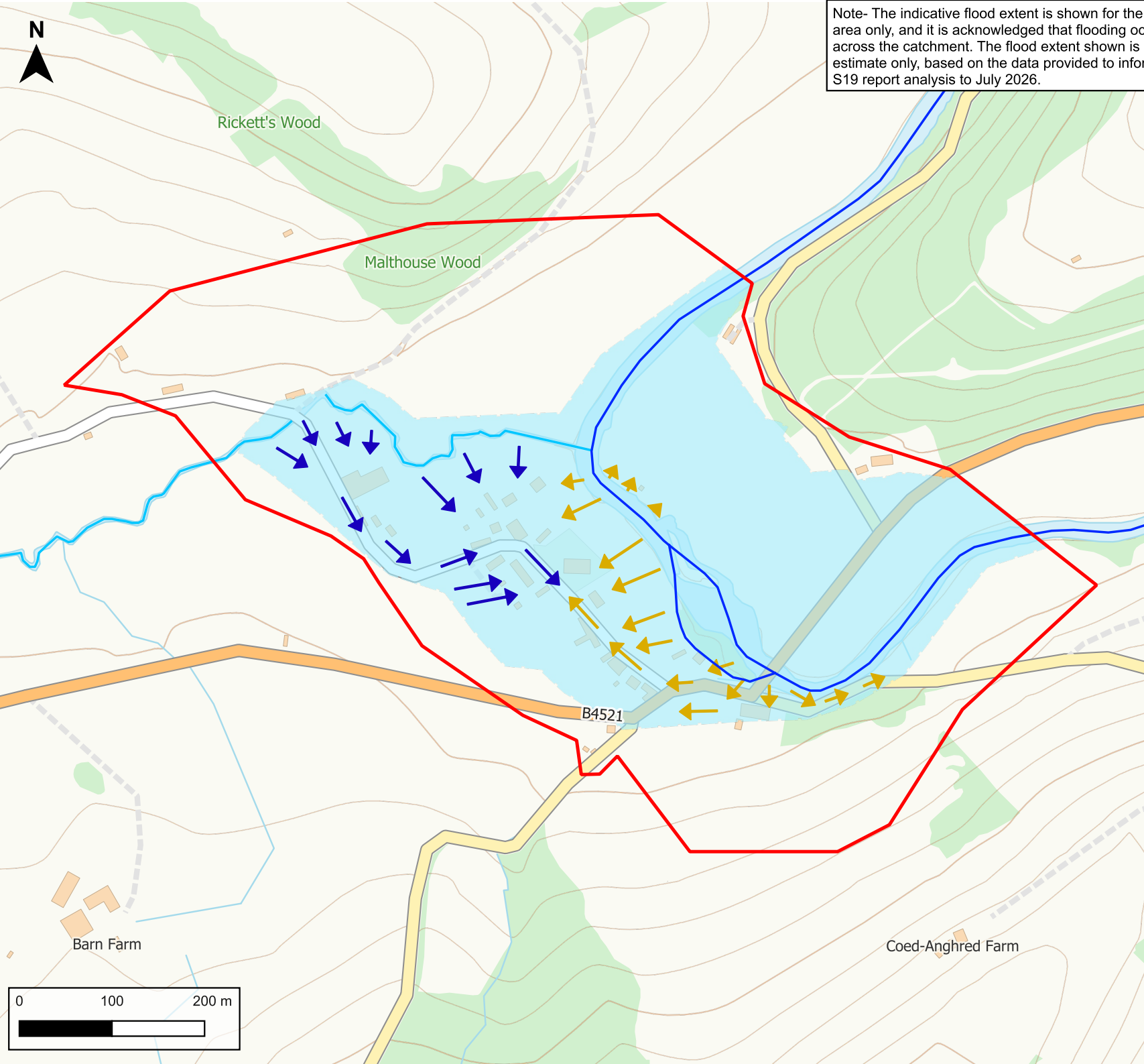
A Appendix

Supporting Calculations - to be provided on request.

C Flood Mechanism Map - Skenfrith



Note- The indicative flood extent is shown for the study area only, and it is acknowledged that flooding occurred across the catchment. The flood extent shown is an estimate only, based on the data provided to inform the S19 report analysis to July 2026.



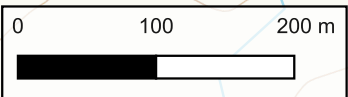
Skenfrith- Flood Mechanisms and Extent

- Skenfrith- Study area
- River Monnow
- Indication of flood extent within study area boundary
- Primary Flow Route
- Secondary Flow Route

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Checked By: FT **Date:** 14/08/2026
Approved By: FT **Date:** 14/08/2026

Figure Title: Skenfrith - Flood Mechanisms and Extent

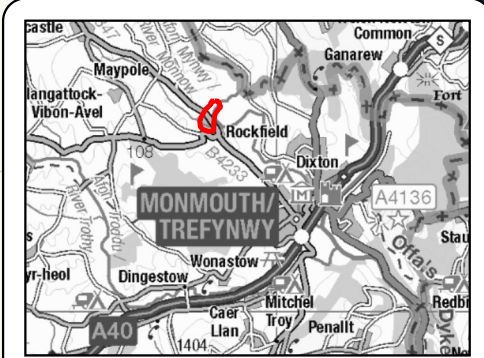
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D Flood Mechanism Map - Rockfield



Note- The indicative flood extent is shown for the study area only, and it is acknowledged that flooding occurred across the catchment. The flood extent shown is an estimate only, based on the data provided to inform the S19 report analysis to July 2026.



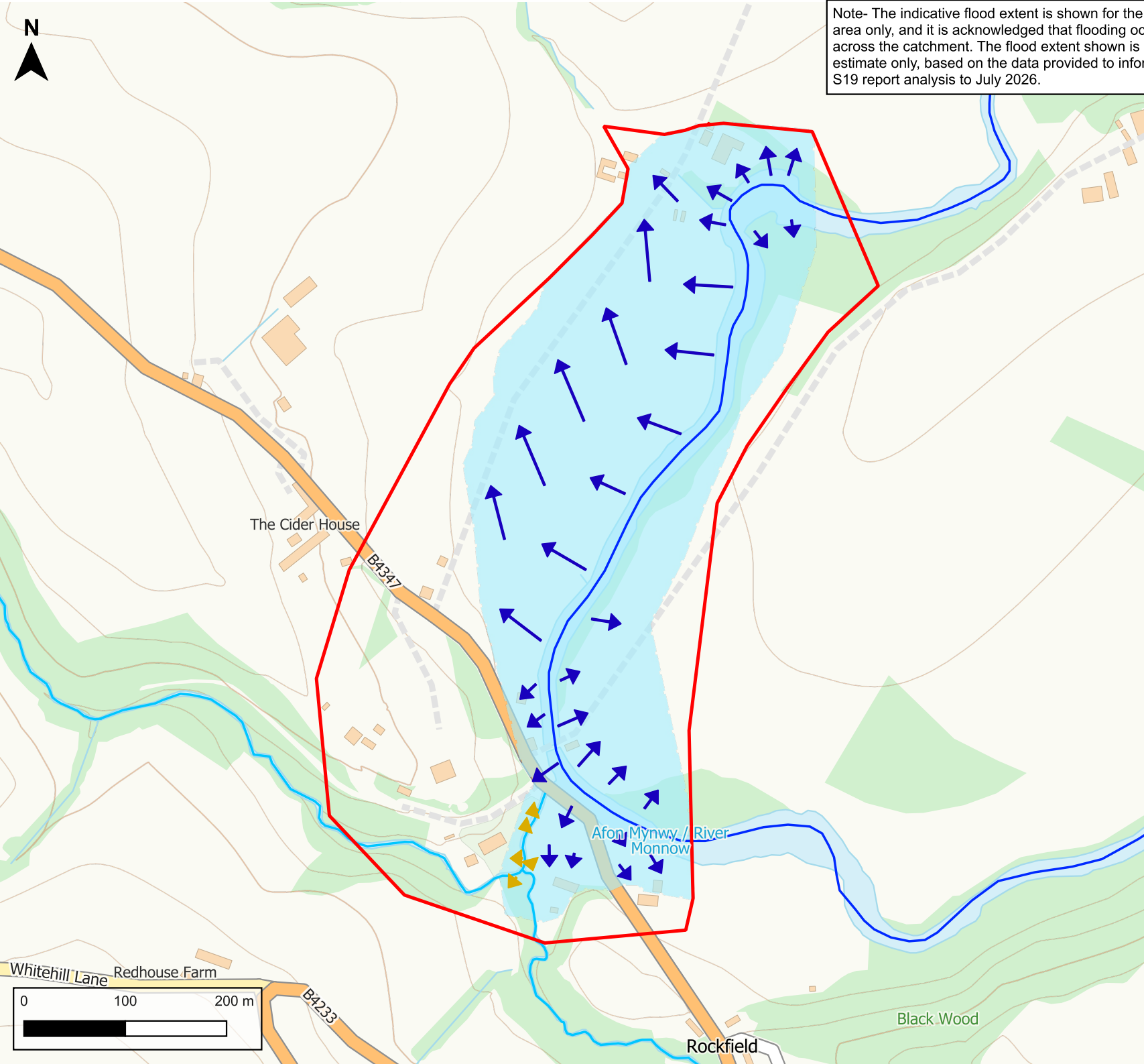
Rockfield- Flood Mechanisms and Extent

-  Rockfield - Study area
-  River Monnow
-  Ordinary Watercourse
-  Indication of flood extent within study area boundary
-  Primary Flow Route
-  Secondary Flow Route

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Figure Title: Rockfield- Flood Mechanisms and Extent

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E Flood Mechanism Map - Forge Road, Osbaston



Note- The indicative flood extent is shown for the study area only, and it is acknowledged that flooding occurred across the catchment. The flood extent shown is an estimate only, based on the data provided to inform the S19 report analysis to July 2026.

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consulting



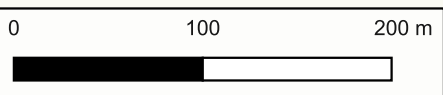
Forge Road, Osbaston- Flood Mechanisms and Extent

-  Forge Road
-  Osbaston - Study area
-  River Monnow
-  Ordinary Watercourse
-  Flood Defences
-  Indication of flood extent within study area boundary
-  Primary Flow Route
-  Secondary Flow Route
-  Tertiary Flow Route

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Figure Title: Forge Road Osbaston- Flood Mechanisms and Extent

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F Flood Mechanism Map - East of Monnow, Monmouth



Note- The indicative flood extent is shown for the study area only, and it is acknowledged that flooding occurred across the catchment. The flood extent shown is an estimate only, based on the data provided to inform the S19 report analysis to July 2026.



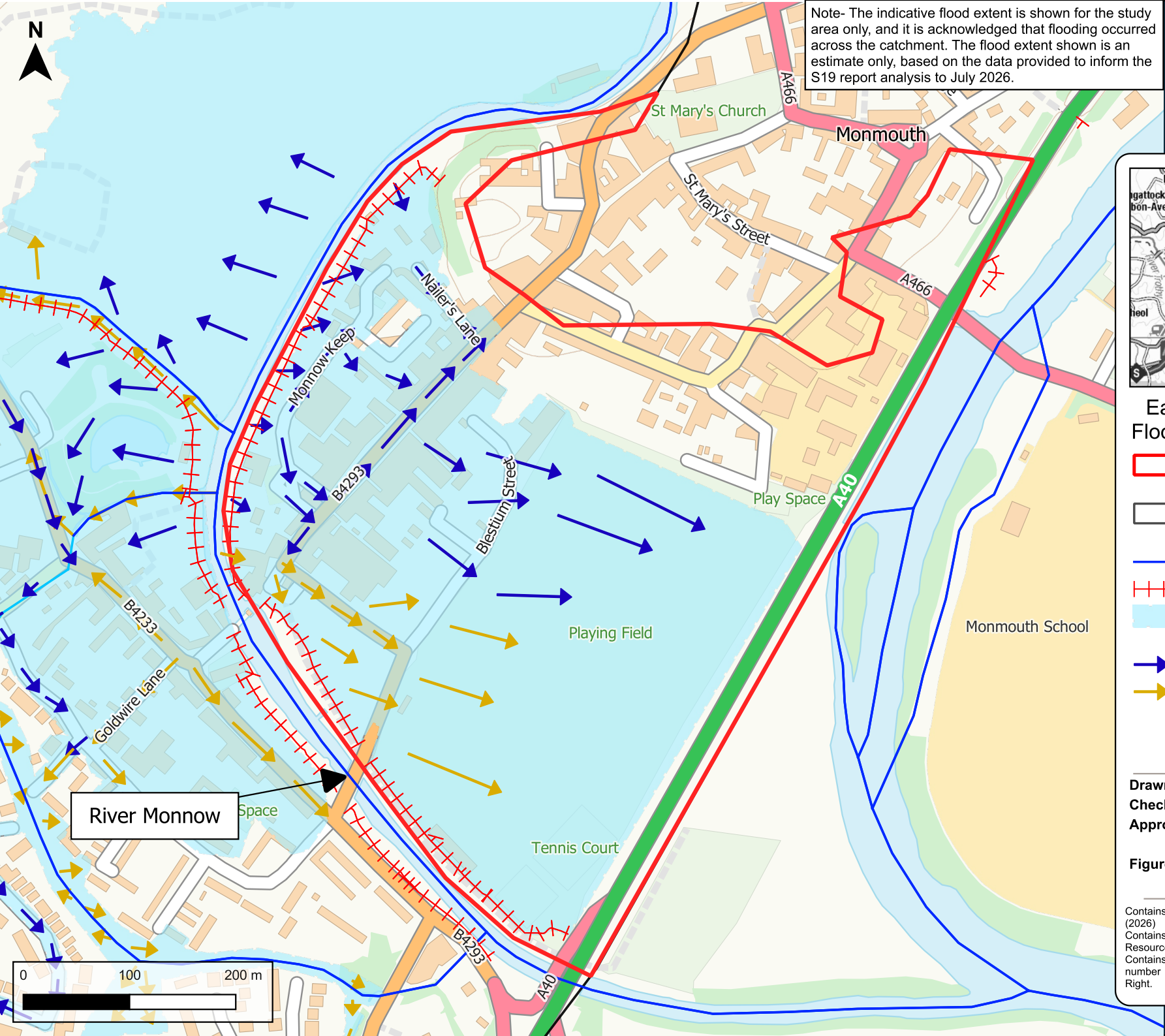
East of the River Monnow - Flood Mechanisms and Extent

- East of the River Monnow- Study area
- Monmouth Town Study Area
- River Monnow
- Flood Defences
- Indication of flood extent within study area boundary
- Primary Flow Route
- Secondary Flow Route

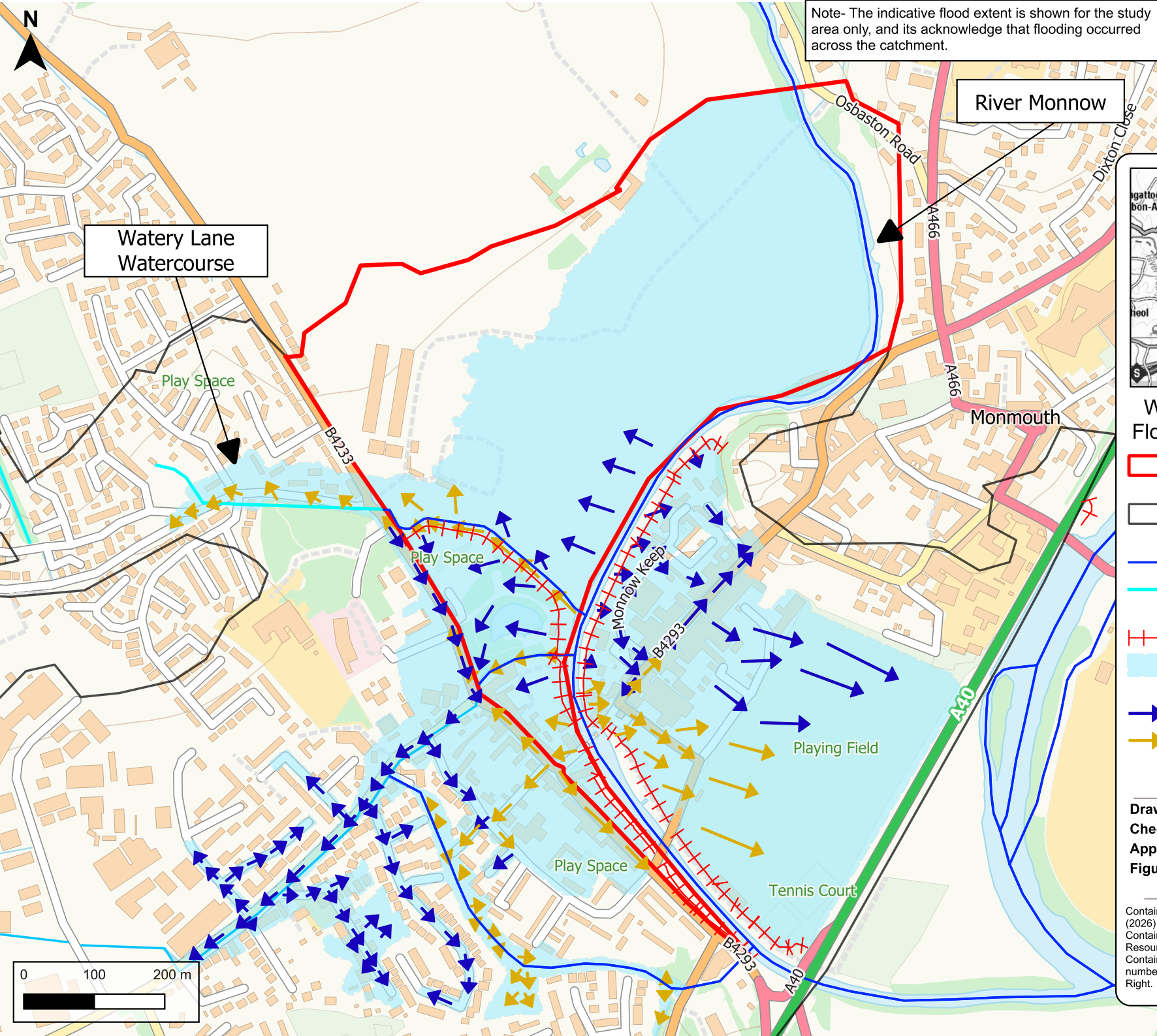
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Checked By:	HB	Date:	28/08/2026
Approved By:	FT	Date:	28/08/2026

Figure Title: East of the River Monnow- Flood Mechanisms and Extent

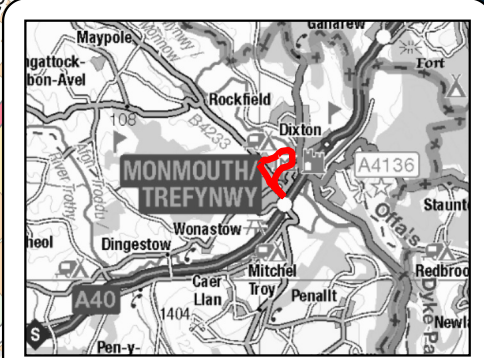
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G Flood Mechanism Map - West of Monnow, Monmouth



Note- The indicative flood extent is shown for the study area only, and its acknowledge that flooding occurred across the catchment.



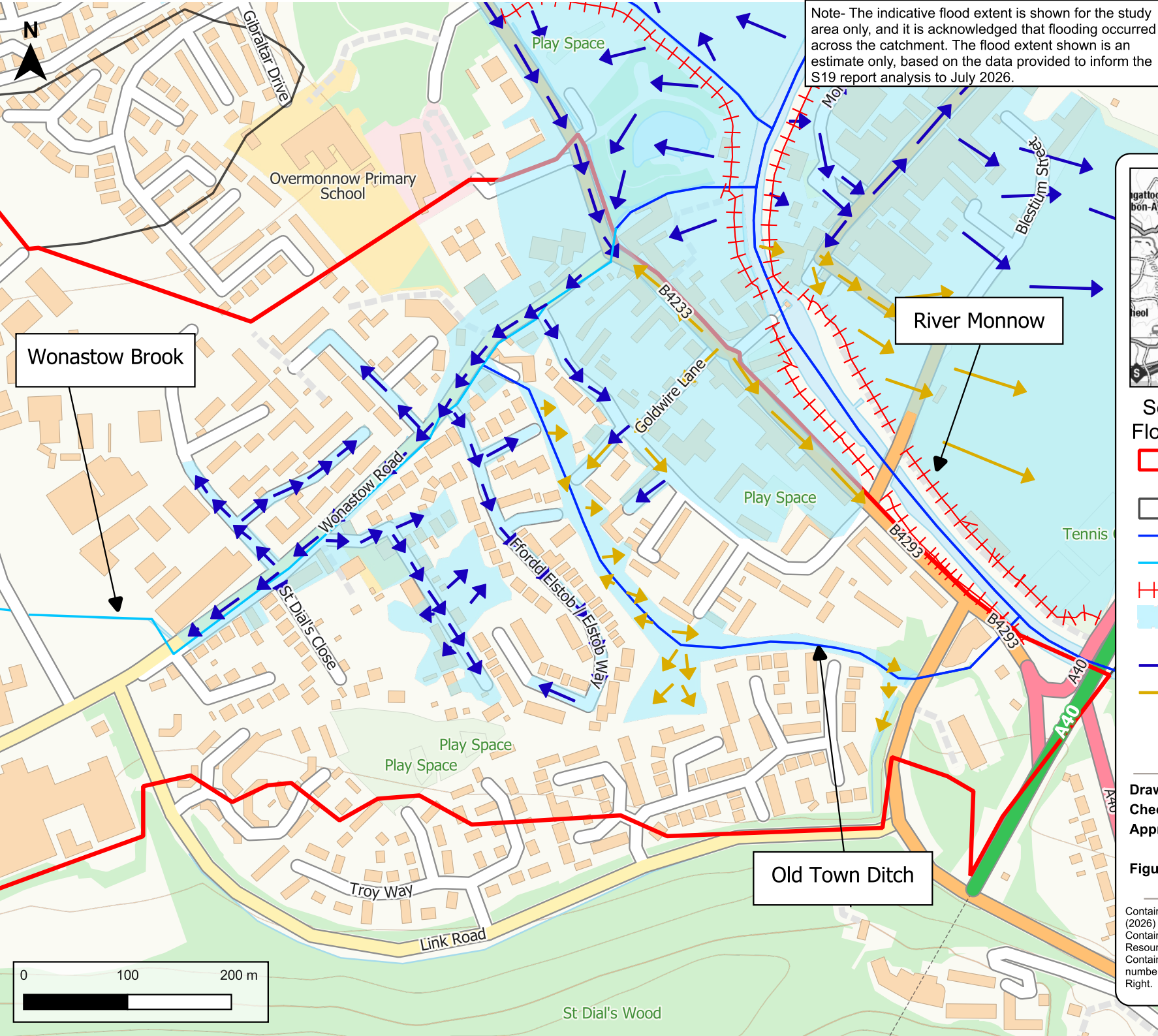
West of the River Monnow - Flood Mechanisms and Extent

- West of the River Monnow - Study area
- Monmouth Town Study Area
- NRW Main Rivers
- Watery Lane Ordinary Watercourse
- Flood Defences
- Indication of flood extent within study area boundary
- Primary Flow Route
- Secondary Flow Route

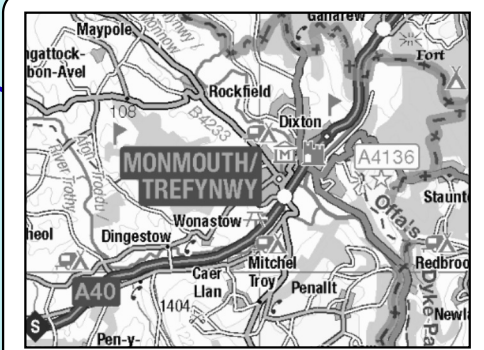
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Figure Title: West of the River Monnow - Flood Mechanisms and Extent

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H Flood Mechanism Map - South of Monnow, Monmouth



Note- The indicative flood extent is shown for the study area only, and it is acknowledged that flooding occurred across the catchment. The flood extent shown is an estimate only, based on the data provided to inform the S19 report analysis to July 2026.



South of the River Monnow- Flood Mechanisms and Extent

- South of the River Monnow-
Study area
- Monmouth study area
- NRW Main Rivers
- Wonastow Brook
- Flood Defences
- Indication of flood extent
within study area boundary
- ➔ Primary Flow Route
- ➔ Secondary Flow Route

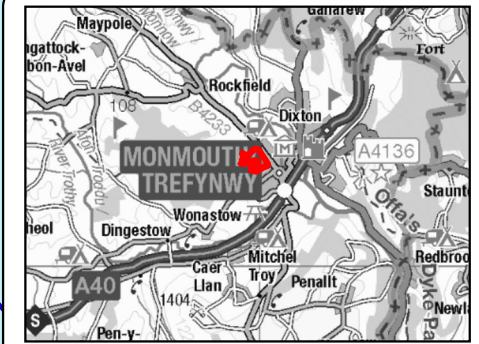
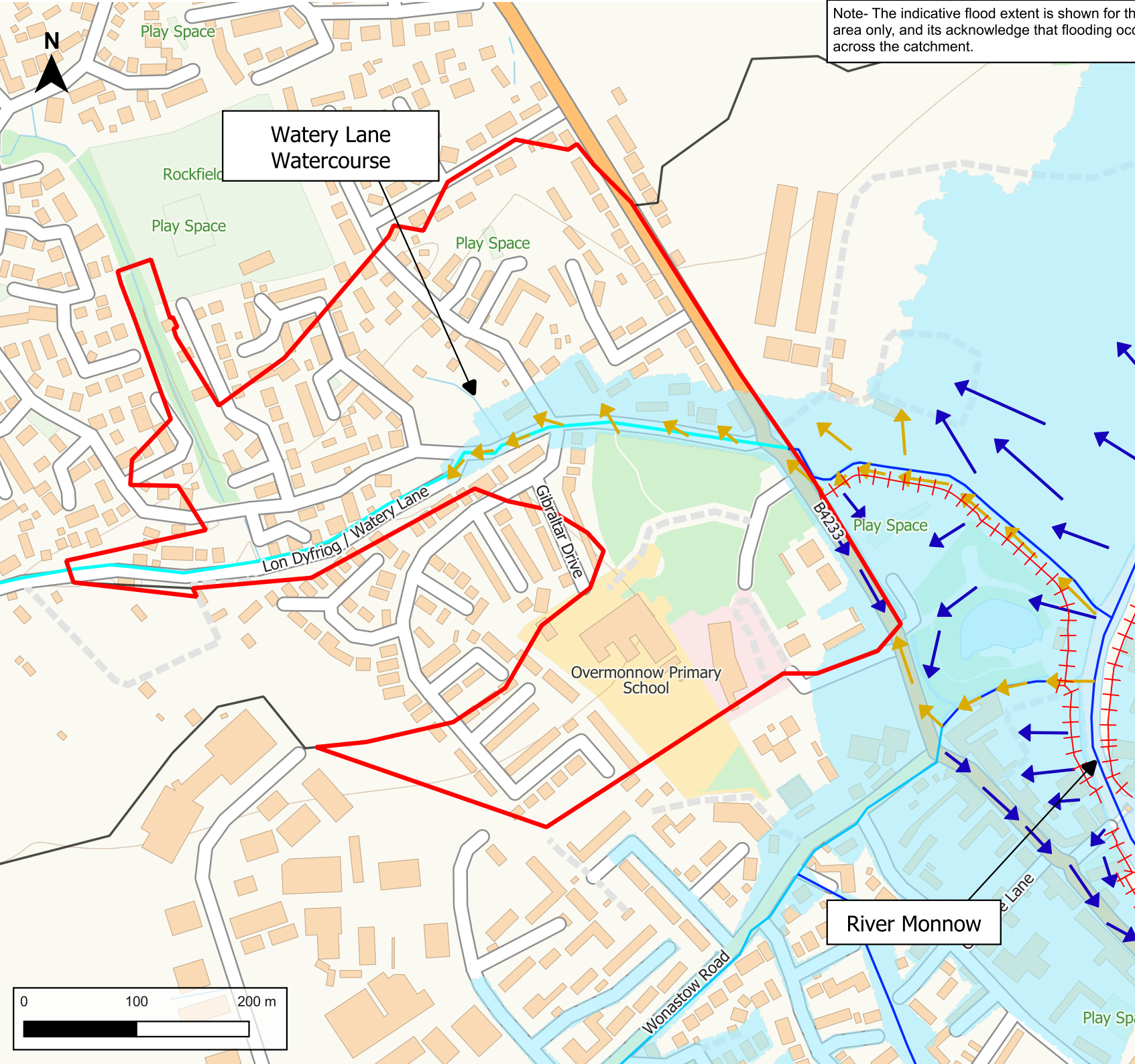
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Figure Title: South of the River Monnow-
Flood Mechanisms and Extent

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I **Flood Mechanism Map - Watery Lane and Rockfield Road, Monmouth**

Note- The indicative flood extent is shown for the study area only, and its acknowledge that flooding occurred across the catchment.



Watery Lane and Rockfield Road - Flood Mechanisms and Extent

- Watery Lane and Rockfield Road
- Monmouth study area
- NRW Main Rivers
- Watery Lane Watercourse
- Flood Defences
- Indication of flood extent within study area boundary
- ➔ Primary Flow Route
- ➔ Secondary Flow Route

Drawn By: PS **Date:** 27/08/2026

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Figure Title: Watery Lane and Rockfield Road - Flood Mechanisms and Extent

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