Platt Bridge Section 19 Flood Investigation Report

Final Report

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This report describes work commissioned by Wigan Council, by an instruction dated 14 January 2025. The Client's representative for the contract was Laura Morrison of Wigan Council. Rachel Flood, Sarah Hambling, and Elsa Holm of JBA Consulting carried out this work.

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Abbreviations

AMAX	Annual Maximum
DDF	Depth-Duration-Frequency
Defra	Department for Environment, Food & Rural Affairs
FEH	Flood Estimation Handbook
GMRF	Greater Manchester Resilience Forum
JBA	Jeremy Benn Associates
LiDAR	Light Detection and Ranging
LLFA	Lead Local Flood Authority
LRF	Local Resilience Forum
mALD	Metres above Local Gauge Datum
mAOD	Metres above Ordnance Datum
NFM	Natural Flood Management
NHS	National Health Service
PFR	Property Flood Resilience
POT	Peak-Over-Threshold
QMED	50% annual probability peak flow
RMA	Risk Management Authority
RoFSW	Risk of Flooding from Surface Water

Definitions

Annual probability: The chance that a flood event of the specified magnitude or larger will occur in any given year.

Combined sewer system: A type of drainage system where both wastewater (sewage) and stormwater (rainwater runoff) are collected and conveyed through the same pipes to a sewage treatment plant.

Combined Sewer Overflow (CSO): When untreated or partially treated combined wastewater discharges from an outfall directly into a watercourse. They were developed as overflow valves to reduce the risk of sewage backing up during heavy rainfall.

Culvert: Where a watercourse flows through a pipe, often underground.

Flap valve: Hinged valve placed on a pipe outlet into a river. Stays open during normal flow but closes when it is submerged, to prevent flow from backing up the pipe.

Flood defence: Infrastructure used to protect an area against floods such as floodwalls and embankments; they are designed to a specific Standard of Protection.

Foul sewer: The underground pipe system that carries wastewater, including sewage and greywater, from homes and businesses to a sewage treatment plant for treatment.

Groundwater: All water which is below the surface of the ground and in direct contact with the ground or subsoil (as defined in the Flood and Water Management Act 2010).

Gully: A drainage point, typically covered by a metal grate, located at the side of the road to collect and remove excess water from the highway, directing it into the surface water sewer or other drainage systems.

Lead Local Flood Authority (LLFA): As either the unitary authority or the County Council for the area, leads on managing local sources of flood risk.

Main river: A watercourse shown as such on the statutory main river map held by the Environment Agency. They are usually the larger rivers and streams. The Environment Agency has permissive powers (not duties) to carry out maintenance and improvement works on main rivers.

Ordinary watercourse: Any river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows but which does not form part of a main river. The local authority or Internal Drainage Board has permissive powers (not duties) on ordinary watercourses.

Risk Management Authority (RMA): The Environment Agency; a Lead Local Flood Authority; a District Council in an area where there is no unitary authority; an internal drainage board; a water company and a highway authority.

Risk: In flood risk management, risk is defined as a product of the probability or likelihood of a flood occurring, and the consequence of the flood.

Stakeholder: A person or organisation affected by the problem or solution or interested in the problem or solution. They can be individuals or organisations, includes the public and communities.

Surface water sewer: A system designed to collect and channel rainwater and other uncontaminated surface runoff, typically from properties, roads, and pavements. The system directs the water to a stream, river, soakaway, or a combined sewer.

Executive Summary

Background

Platt Bridge was impacted by the widespread flooding which occurred in the North West of England on 1 January 2025. It is Wigan Council's duty as Lead Local Flood Authority (LLFA) to investigate the flooding in Platt Bridge, as set out under Section 19 of the Flood and Water Management Act 2010 (legislation.gov.uk). Wigan Council has appointed JBA Consulting to undertake this investigation on its behalf.

Stakeholder engagement

As part of the Section 19 flood investigation, multiple local stakeholders were engaged in Platt Bridge. These stakeholders included residents, local resilience forums, and Risk Management Authorities (RMAs). This reinforced the partnership working group which has been in place since the flood event. The objectives of the engagement were to:

- gather evidence and data to aid the understanding of the investigation;
- involve the community in the investigation; and
- review the flooding mechanisms and recommendations with RMAs and operational partners.

For further information see Section 1.3.

Study area

The study area for this Section 19 flood investigation covers two areas of Platt Bridge. The Bickershaw Lane area in the east covers Bickershaw Lane, Keats Way, and Simpkin Street. The Templeton Road area in the north covers Templeton Road, Walthew Lane, and Platt Street.

For further information see Section 2.

Flood risk understanding

There are multiple sources of flood risk which are shown to impact the study area. According to latest flood risk mapping and data, in the Templeton Road area the main source of flood risk is fluvial, with additional surface water and sewer risk. In the Bickershaw Lane area, the eastern side is at risk from a combination of fluvial, surface water, and sewer sources, whilst the main risks on the western side are surface water, and sewer.

Fluvial flood risk: Detailed hydraulic modelling currently in development as part of the proposed Hindley Flood Risk Management Scheme shows large parts of the Templeton Road area are located at fluvial flood risk. The modelling also shows fluvial flood risk along the east side of Bickershaw Lane in the 1% annual probability event, whilst the 0.1% annual probability event also encompasses the west side of Bickershaw Lane.

Sewer flood risk: There are direct outfalls of several highway drains and surface water sewers into watercourses in the area, the functionality of which can be impacted during flooding as a result of the outfalls becoming submerged due to high water levels in the watercourses.

Surface water flood risk: The Environment Agency's Risk of Flooding from Surface Water (RoFSW) (environment.data.gov.uk) mapping shows large parts of the Templeton Road area are at surface water risk, covering similar areas to the fluvial risk. The land to the north of Hey Brook is also shown to be at surface water risk as are both the eastern and western sides of the Bickershaw Lane area.

Groundwater flood risk: No groundwater flooding data was available for this Section 19 flood investigation. However, anecdotal reports from residents suggest that the Bickershaw Lane area is susceptible to groundwater flooding.

Historic flooding: The area of Bickershaw Lane has experienced several recent flood events, with four events reported in the last four years, prior to 1 January 2025. In the Templeton Road area, the last reported flood event was December 2015.

For further information see Section 3.

Hydrometric summary of the event

Antecedent conditions in the weeks and days leading up to the 1 January 2025 event were not particularly unusual. This points to the rainstorm event itself being the main driver of the observed flooding in Platt Bridge. The double-peak nature of the rainstorm and its long duration were the combined main drivers of high fluvial flows in Hey Brook. The first rainfall peak (around 10 mm - 20mm) likely reduced soil storage in the catchment. The immediate occurrence of the second larger peak (30mm - 40mm) was exacerbated by this initial peak. Calculations suggest the rainfall event was between a 1.5% and 3.5% annual probability event. The resulting response for river flows is estimated to have been around a 4% annual probability event but may have been a larger event in reality due to a lack of nearby high-quality flow data for small river catchments.

For further information see Section 5.

Source-pathway-receptor analysis

The sources, pathways, and receptors of the flood event on 1 January 2025 were as follows:

- **sources** - extreme rainfall, overtopping of Hey Brook and Brookside Brook Drain, groundwater emergence in the Bickershaw Lane area, and highway drains and sewers surcharging.
- **pathways** - overland fluvial flows flowing north from Hey Brook and west from Brookside Brook Drain approaching surrounding properties. There was also groundwater rising through the floors of properties, river water backing up via the drains and sewers, and highway gulleys and manholes surcharging and flooding surrounding properties.
- **receptors** - internal flooding of at least 35 residential properties and 11 commercial properties, disruption to local services, submersion of Templeton Road pumping station, resident displacement, loss of possessions, and negative mental and physical health impacts.

For further information, including mapping and photos of the sources, pathways, and receptors, see Section 6.

Incident response

Several agencies responded to the flood event in Platt Bridge, including Wigan Council, the Environment Agency, United Utilities, Electricity North West, and Greater Manchester Fire and Rescue Service.

For further information, including a timeline of incident response, see Section 7.

Conclusions and recommendations

The flood event in Platt Bridge occurred due to fluvial flooding from Hey Brook, which subsequently combined with a series of interacting flood risk mechanisms in the vicinity including surface water, sewer, and groundwater. This resulted in flooding to local properties, businesses, and road networks and had significant implications for the local community. A number of recommended actions for the RMAs and wider organisations have been made in Section 8. These focus on partnership working to address the interacting flood risk mechanisms, rather than addressing different sources in isolation.

1 Introduction

1.1 Background to the investigation

Platt Bridge was impacted by the widespread flooding which occurred in the North West of England on 1 January 2025. It is Wigan Council's duty as Lead Local Flood Authority (LLFA) to investigate the flooding in Platt Bridge, as set out under Section 19 of the Flood and Water Management Act 2010 (legislation.gov.uk).

Section 19 states that:

- "(1) On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers necessary or appropriate, investigate:
  (a) Which risk management authorities have relevant flood risk management functions, and
  (b) Whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood.
- (2) Where an authority carried out an investigation under subsection (1) it must –
  (a) Publish the results of its investigation, and
  (b) Notify any relevant risk management authorities."

Wigan Council has outlined its criteria for undertaking a formal investigation on their website and in the Association of Greater Manchester Authorities' (AGMA) Policy for Investigating Flood Incidents (wigan.gov.uk). Definitions of a 'significant' flood event, that would prompt an investigation, are based on the following criteria:

- risk to life;
- weight of public, media, political and planning interest;
- impact on critical services;
- impact to either 5 or more residential buildings or 2 or more commercial properties;
- economic disruption;
- impact on critical infrastructure and installations; and
- frequency of flooding.

The flooding that occurred in Platt Bridge was deemed a significant event by Wigan Council, triggering an inquiry. Wigan Council has appointed JBA Consulting to undertake this investigation on its behalf.

1.2 Data collection

A wide range of data has been collected and analysed to inform the Section 19 flood investigation. This has been used to understand the causes of flooding and establish the context of the area, and includes the following:

- open-source data from GOV.UK;
- residents' questionnaires;
- photographs from the site visit showing flood sources, pathways, and receptors;
- hydrometric data;
- information from Risk Management Authorities (RMAs) on drainage infrastructure; and
- other data such as photographs, videos, YouTube drone footage, newspaper articles, and notes from the events.

1.3 Stakeholder engagement

As part of the Section 19 flood investigation, multiple local stakeholders were engaged in Platt Bridge. These stakeholders included residents, Local Resilience Forums (LRFs), and RMAs. This reinforced the partnership working group which has been in place since the flood event. The objectives of the engagement were to:

- gather evidence and data to aid the understanding of the investigation;
- involve the community in the investigation; and
- review the flooding mechanisms and recommendations with RMAs and operational partners.

A list of key stakeholders and how they were engaged is provided in Table 1-1, based on the following categories of engagement:

- inform: provide information;
- consult: receive, listen, understand and feedback;
- involve: decide together;
- collaborate: act together; and
- empower: support independent action.

Table 1-1: Key stakeholders.

Role	Organisation	Stakeholder engagement	Engagement details
LLFA	Wigan Council	Involve/ Consult/ Collaborate	Invitation to contribute, site visit, online survey distribution, correspondence, public engagement meeting.
Residents	N/A	Consult/ Empower	Site visit, online questionnaire, correspondence.
Water and	United Utilities	Involve/	Invitation to contribute, site

Role	Organisation	Stakeholder engagement	Engagement details
sewerage company		Consult/ Collaborate	visit, correspondence, data provision.
Environment Agency	Environment Agency	Involve/ Consult/ Collaborate	Invitation to contribute, site visit, correspondence, data provision.
Charitable Trust	Canal and Rivers Trust	Consult	Correspondence, data provision.
Resilience Forum	Wigan Borough Resilience Forum	Consult	Correspondence, data provision.
Resilience Forum	Greater Manchester Resilience Forum	Consult	Correspondence, data provision.
Emergency Services	Greater Manchester Fire & Rescue Service	Consult	Correspondence, data provision.
Emergency Services	North West Ambulance Service	Consult	Correspondence.

1.4 Resident questionnaire

A Microsoft Forms questionnaire was distributed to residents in the Platt Bridge area. The purpose of the questionnaire is to help Wigan Council gain insights into how the flooding affected the local community. 14 households provided responses. The questions addressed the following:

- flood source(s) and pathways;
- impact on properties (e.g. flood depths, water ingress routes);
- event timing;
- whether relocation was necessary;
- whether residents used Property Flood Resilience (PFR) measures and, if so, whether these were effective;
- response from authorities;
- experiences of previous flood events; and
- overall impacts (e.g., mental health, property damage).

2 Study area

2.1 Investigation extent

Platt Bridge lies approximately 3.5km southeast of Wigan and is in the west of Greater Manchester. Platt Bridge is located east of the West Coast Main Line, with the A573 and A58 running through it. There are several urban settlements near to Platt Bridge, including Abram to the south, Hindley to the northeast, and Spring View to the northwest. There are also nature reserves within and close to Platt Bridge, such as Wigan Flashes to the west and Amberswood in the north.

Figure 2-1 maps the extent of Platt Bridge which is being investigated in this Section 19 flood investigation report. The 1 January 2025 flood event impacted two areas of Platt Bridge, as a result of different flooding mechanisms. The Bickershaw Lane area in the east covers Bickershaw Lane, Keats Way, and Simpkin Street. The Templeton Road area in the north covers Templeton Road, Walthew Lane, and Platt Street.

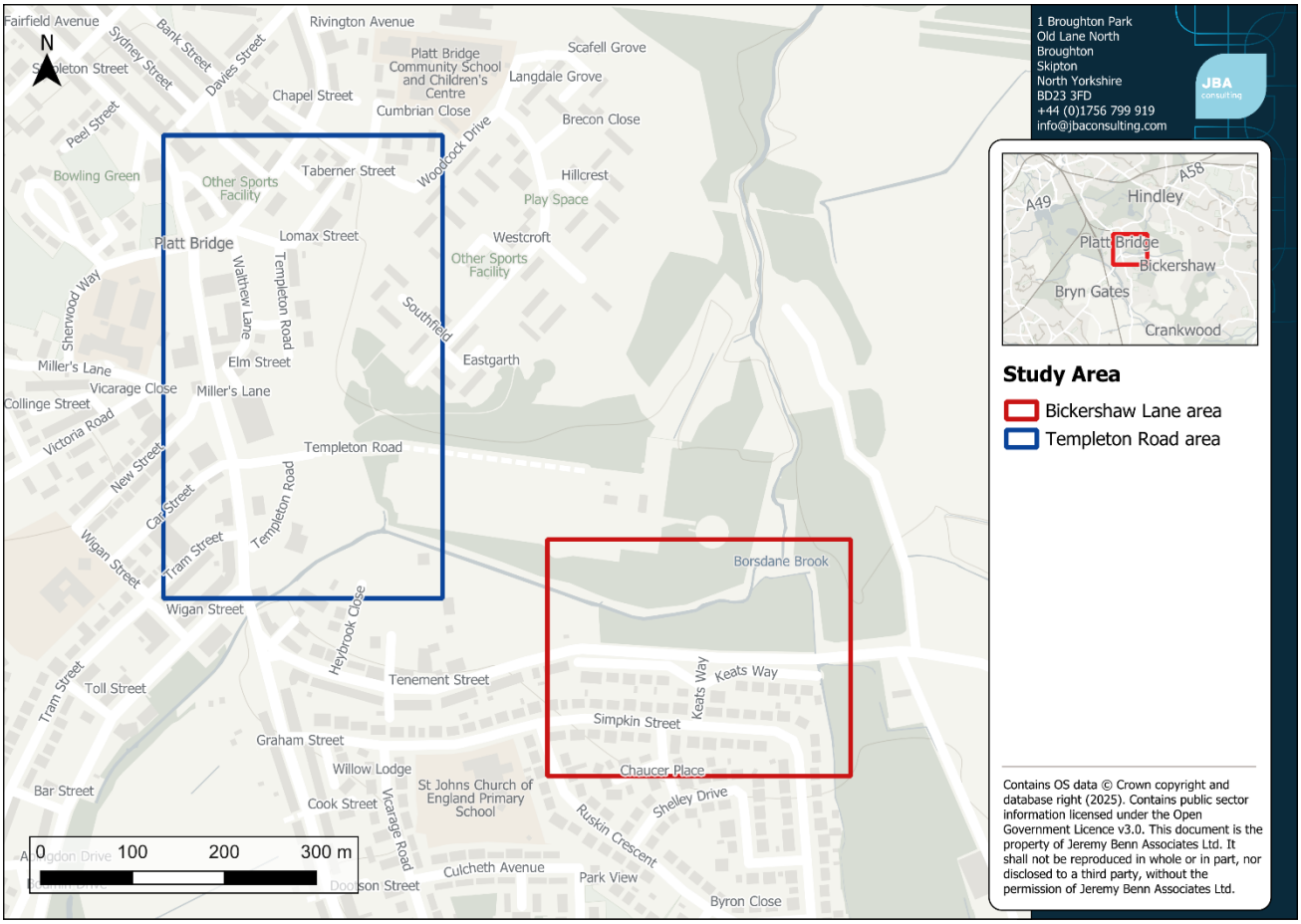


Figure 2-1: Locations of Bickershaw Lane study area and Templeton Road study area.

2.2 Topography

The topography across the study area and the surrounding land is shown in Figure 2-2, represented by the Environment Agency's 1m resolution LiDAR.

The general topography of the area slopes downhill towards Bordsdane/Hey Brook which flows through the centre of the area. There are large areas of lower elevation to the north of the Brook, encompassing Walthew Lane and Templeton Road in the northwest and Hindley pumping station and the surrounding industrial land adjacent to the watercourse. Lower elevations to the south of the watercourse encompass Keats Way and the northeastern stretch of Simpkin Street.

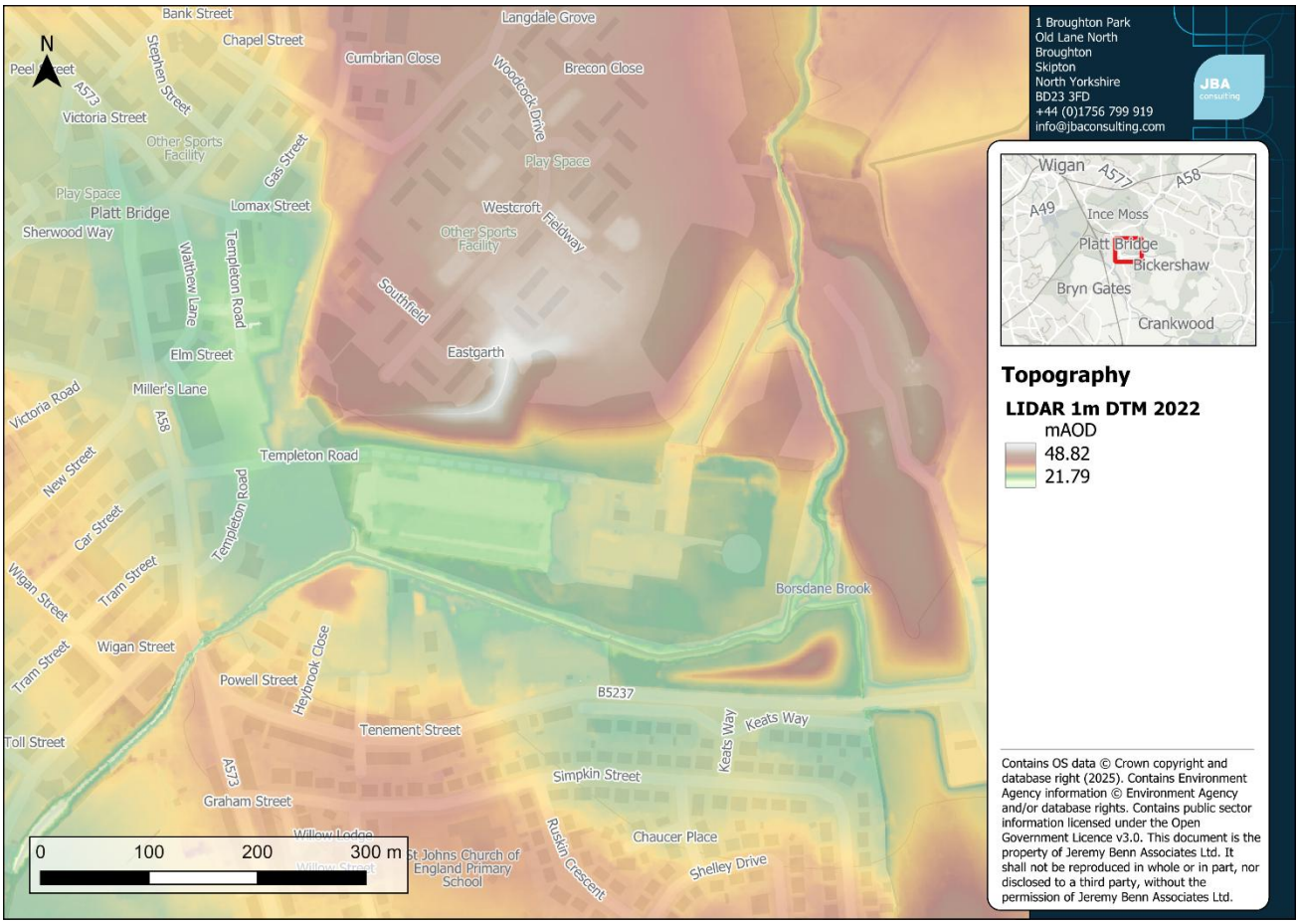


Figure 2-2: Topography of the Platt Bridge study area.

2.3 Land cover and soils

The UK Soil Observatory Map (ukso.org) shows that soils across most of the study area are slowly permeable, which may limit infiltration rates of rainfall. However, given the urban nature of the catchment, it is likely that the amount of impermeable surfaces will have a greater impact on runoff rates than the underlying geology and soils. Increases in impermeable areas in the catchment as a result of future developments could have an impact on the volume of runoff generated.

2.4 Drainage systems and river network

2.4.1 Watercourses

A watercourse can be any stream of water flowing in a defined channel, or through an underground pipe or culvert. In England, watercourses are classified as 'main rivers' and 'ordinary watercourses'. Main rivers are designated by the Environment Agency and are usually larger rivers and streams, however in some cases main rivers can be small watercourses or drainage channels. All other watercourses are referred to as ordinary watercourses. There are different roles and responsibilities in relation to different types of watercourses, which are covered in Section 4. Figure 2-3 shows the watercourses within the Platt Bridge area.

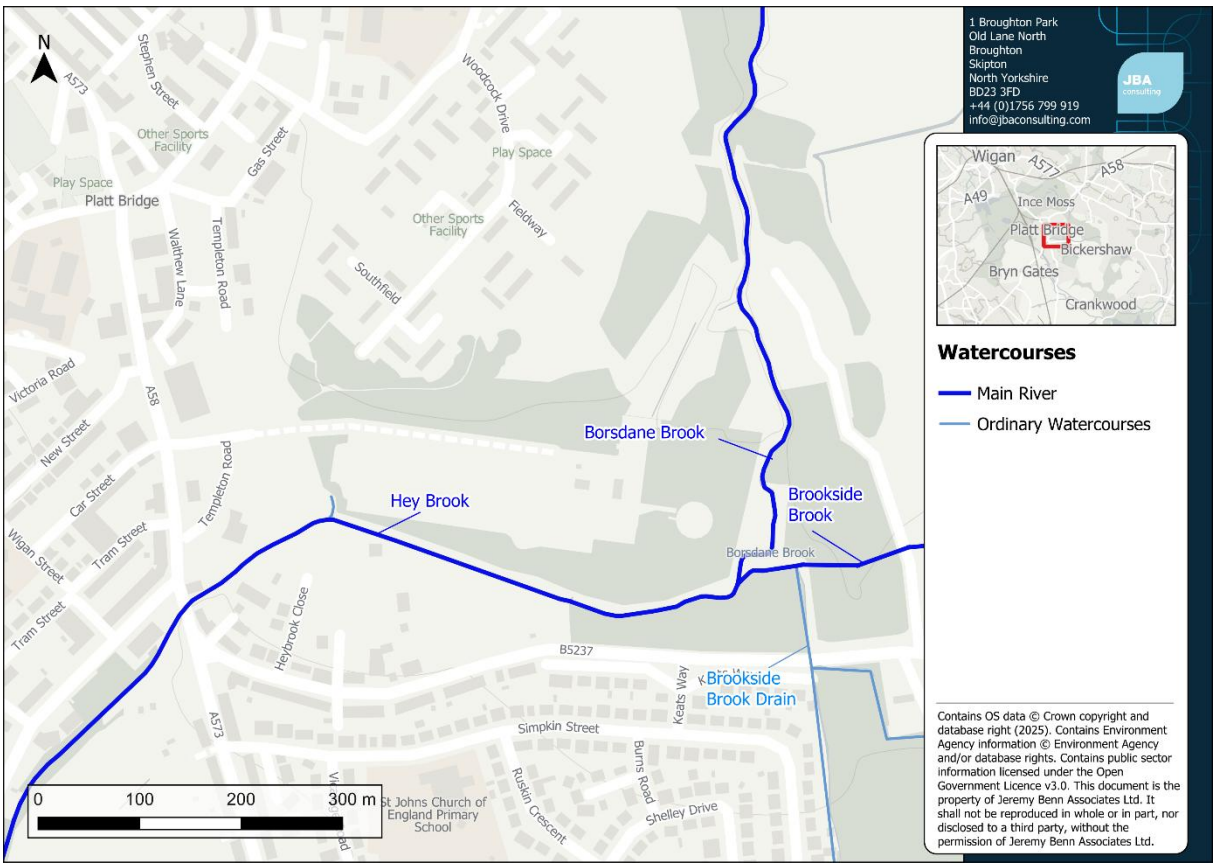


Figure 2-3: Main rivers and ordinary watercourses in Platt Bridge.

There are two main rivers which are confluent in Platt Bridge. Brookside Brook flows from the east and Borsdane Brook flows from the north to their confluence in the east side of Platt Bridge, to the northeast of Keats Way. West of the confluence they continue as a single main river (Hey Brook) in a westerly direction through Platt Bridge.

There is an ordinary watercourse (Brookside Brook Drain) which flows in a northerly direction as an open channel along the east side of Simpkin Street and Keats Way. This watercourse is culverted beneath Bickershaw Lane before it joins Brookside Brook, just upstream of its confluence with Borsdane Brook. There is a second ordinary watercourse, an unnamed open channel, which joins Brookside Brook Drain from the east, just upstream of where the watercourse passes beneath the B5237.

2.4.2 Sewers

The wastewater drainage in the study area is managed by United Utilities.

The United Utilities sewer network in the Bickershaw Lane area is shown in Figure 2-4. This shows two surface water sewers which outfall into Brookside Brook Drain to the east. However, the surface water sewer shown along Keats Way East is believed to be a highway drain (see Section 2.4.3).

The foul and combined sewers from most of the residential area connect into a combined sewer which runs west beneath the B5237 and connects into Bickershaw Lane pumping station. Bickershaw Lane pumping station has a combined sewer overflow which discharges into Hey Brook. There is a surface water sewer to the west of Keats Way which outfalls directly into Hey Brook. The surface water sewer which runs beneath Keats Way West connects into the combined sewer network. There is a DG5 tank situated to the northwest of Keats Way which was installed by United Utilities to alleviate sewer flooding issues in the area.

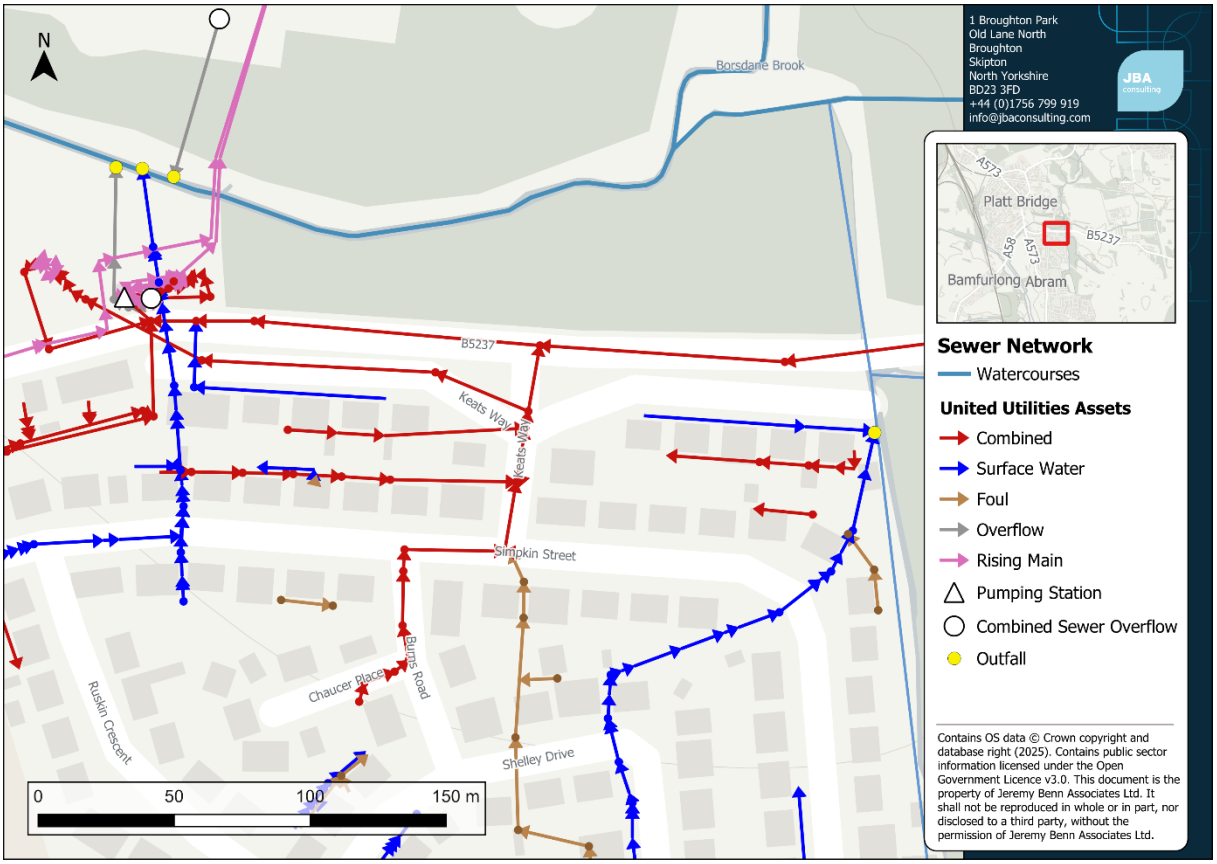


Figure 2-4: United Utilities sewer network in the Bickershaw Lane area.

The United Utilities sewer network in the Templeton Road area is shown in Figure 2-5. The sewerage network in this area is predominantly served by a combined sewer network which drains to the Templeton Road pumping station. There is a surface water sewer shown which runs beneath Platt Street/Warrington Road and has an outfall into Hey Brook at the upstream side of the Warrington Road bridge, however this was reported by Wigan Council to be a highway drain (see Section 3.1.4). There is a surface water sewer which takes surface water from the Woodcock Drive area and has an outfall into a small tributary of Hey Brook, south of Templeton Road pumping station.

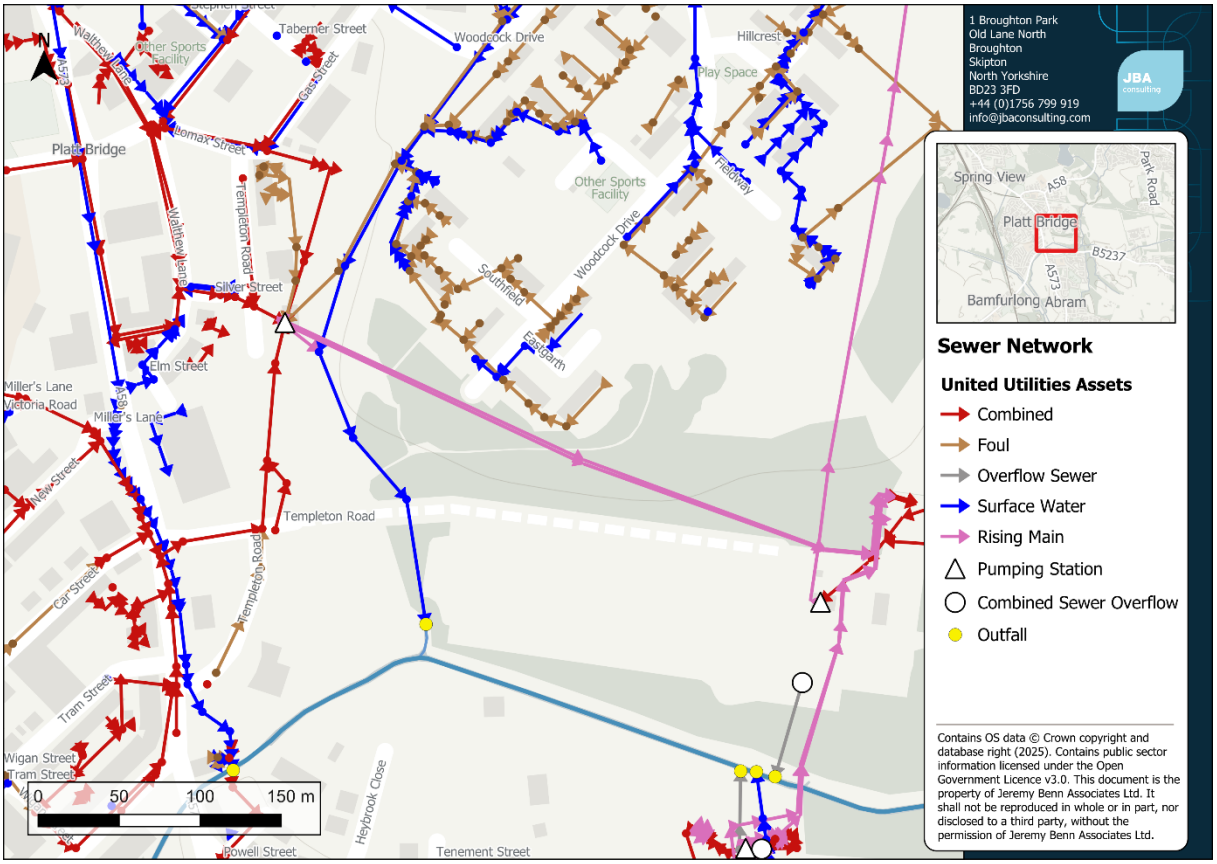


Figure 2-5: United Utilities sewer network in the Templeton Road area.

2.4.3 Highway drainage

Roads in the study area are drained by a network of highway gullies which are maintained by Wigan Council Highways Department. The locations of highway gullies in the Bickershaw Lane area are shown in Figure 2-6.

The gullies along the eastern side of Keats Way outfall directly into Brookside Brook Drain via two outfalls. The gulleys on the western side connect into the United Utilities surface water sewer, which connects to Bickershaw Lane pumping station.

Some of the highway gullies along Bickershaw Lane outfall directly onto the surrounding land to the north whilst some connect into the United Utilities combined sewer which also connects to Bickershaw Lane pumping station. The gullies along Simpkin Street are reported to indirectly connect to this combined sewer and the Bickershaw Lane pumping station via surface water sewer, however, United Utilities mapping does not show a surface water sewer along this section of road (Figure 2-4).

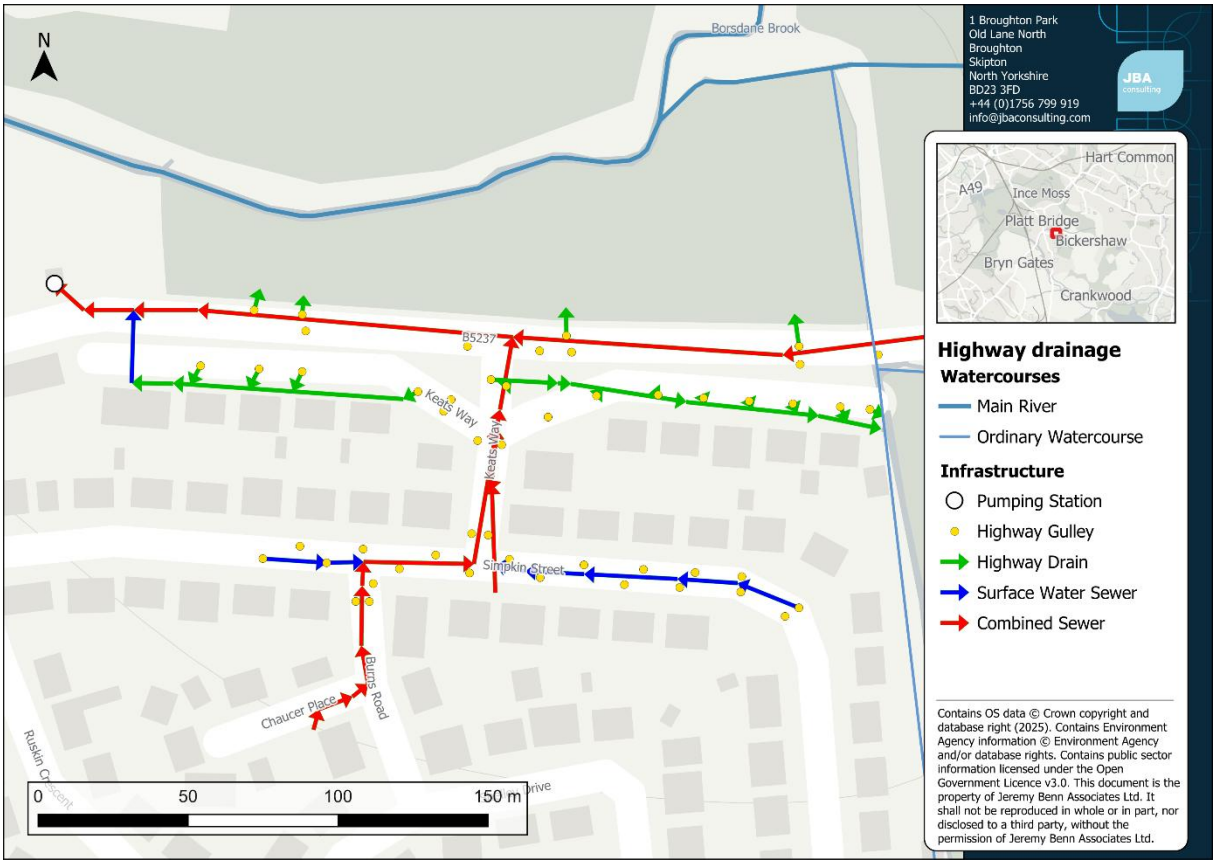


Figure 2-6: Highway drainage along Keats Way/Bickershaw Lane and Simpkin Street including relevant United Utilities infrastructure.

In the Templeton Road area, gulleys along Walthew Lane and Templeton Road are believed to connect into the combined sewer system which is connected to the Templeton Road pumping station. Highway gulleys along Platt Street and Warrington Road connect into a highway drain which has an outfall directly into Hey Brook, upstream of the Warrington Road bridge.

3 Flood risk understanding

3.1 Existing knowledge of flood risk sources

3.1.1 Fluvial flood risk

The Environment Agency's 'Check the long term flood risk' (gov.uk) can be used to understand the flood risk in an area. This shows the risk of flooding from rivers and sea, accounting for the presence and condition of flood defences, with the following chance of occurring in any given year:

- **high risk:** greater than a 3.3% annual probability;
- **medium risk:** between a 3.3% and 1.0% annual probability;
- **low risk:** between a 1.0% and 0.1% annual probability; and
- **very low risk**: less than 0.1% annual probability.

Large parts of the United Utilities land to the north of Hey Brook is shown to be at high risk. The high risk extent also extends further north to cover Templeton Road and Walthew Lane. The east side of Bickershaw Lane is shown to be at medium risk. A larger area is shown to be at low risk both north of Hey Brook and south of Hey Brook along Bickershaw Lane and Simpkin Street.

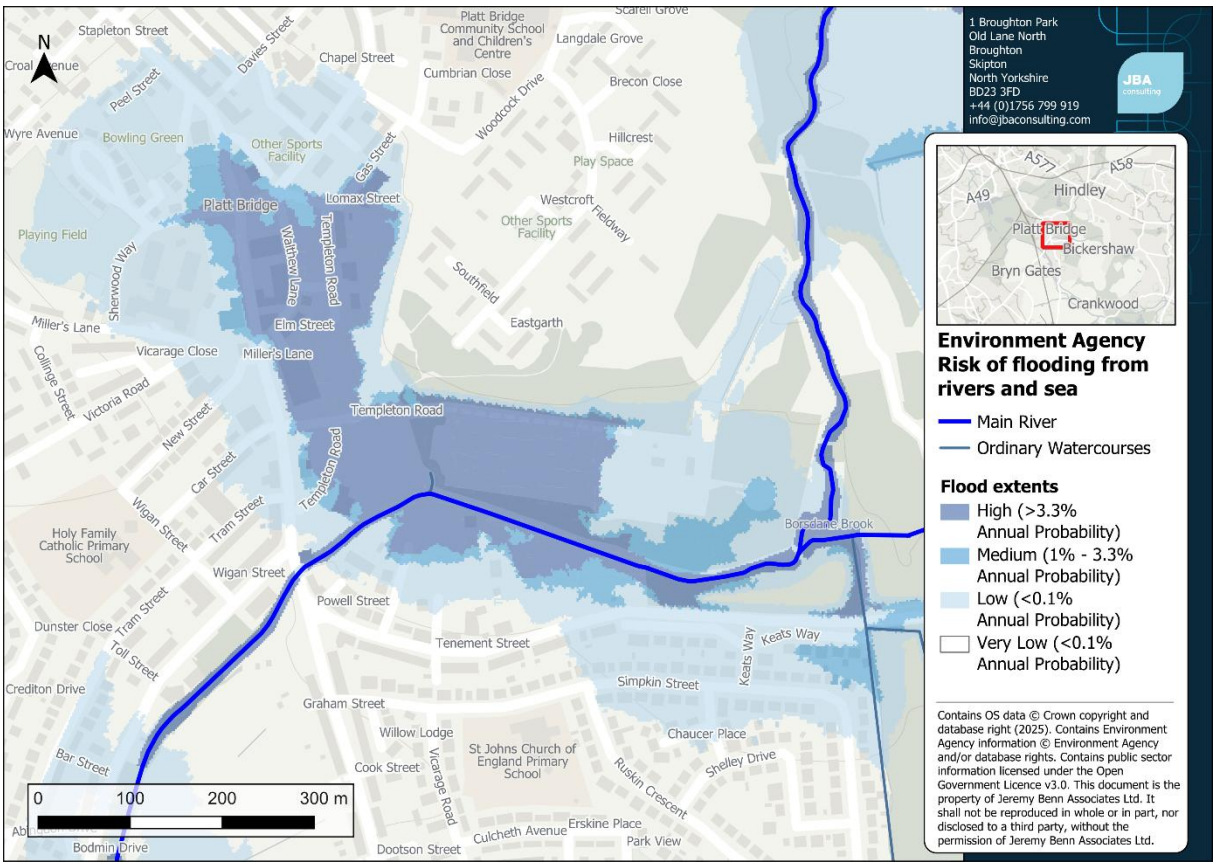


Figure 3-1: The Environment Agency's Risk of Flooding from Rivers and Sea mapping for the study area.

As part of the proposed Hindley Flood Risk Management Scheme, an updated detailed hydraulic model is being developed which covers the area of Platt Bridge. The 1%, and 0.1% annual probability events are shown in Figure 3-2.

The 1% annual probability modelled extent generally shows a similar extent to the 'high' and 'medium' risk areas identified within the Environment Agency Risk of Flooding from Rivers and Sea dataset but is slightly larger in places. In the Templeton Road area, the 1% annual probability modelled extent covers Platt Street and a larger area to the west. In the Bickershaw Lane area the 1% annual probability extent covers all properties along Keats Way East.

The 0.1% annual probability modelled extent is shown to be smaller than the 'low' risk areas identified within the Environment Agency Risk of Flooding from Rivers and Sea dataset, particularly to the west of Platt Street and across Simpkin Street in the east.

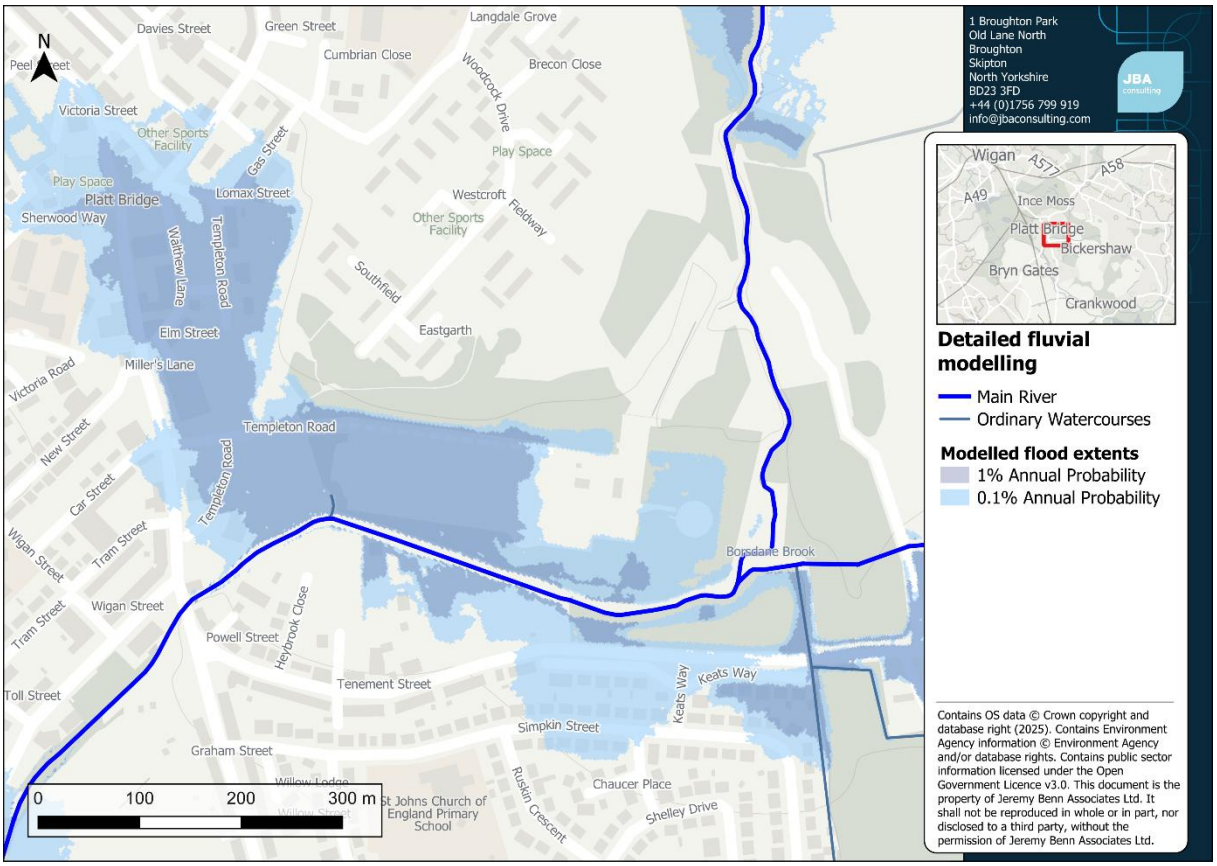


Figure 3-2: Detailed hydraulic modelling extents for the study area.

3.1.2 Surface water flood risk

Surface water flooding occurs when the volume and intensity of rainfall overwhelms local drainage systems. Surface water runoff often flows off hills and areas of higher ground and pools in lower-lying flat areas and along roads and paths. The Risk of Flooding from Surface Water data is national scale mapping showing the risk of flooding from surface water runoff, published by the Environment Agency. This can be viewed on the Environment Agency's 'Check the long term flood risk' (gov.uk) website. Figure 3-3 shows the areas at risk of flooding in response to rainfall events with the following chance of occurring in any given year:

- **high risk:** greater than a 3.3% annual probability;
- **medium risk:** between a 3.3% and 1.0% annual probability; and
- **low risk:** between a 1.0% and 0.1% annual probability.

In the 3.3% annual probability event, there are several areas of surface water pooling across the study area. The largest areas of ponding include along Keats Way, by Platt Street (A58), and also in an area surrounding Silver Street, Templeton Road, and south to the carpark. There are also several areas of ponding on the residential streets surrounding Woodcock Drive. In the 3.3% annual probability event, there is also ponding of surface water flood risk on the land where the Hindley pumping station and solar panels are located, and on the green spaces and woodland area in the northeast of the study area.

In the 1% annual probability event increased areas are at risk including Keats Way near the Hindley pumping station, and the flood extent expands around Templeton Road in the north and stretches down Templeton Road south of the car park. In the 0.1% annual probability event, the flood extents increase further, covering much of the residential housing around Keats Way and the land west of Hindley pumping station. The flood extents also cover (partially or entirely) many streets in the north west including Liverpool Road (A58), Platt Street (A58), Walthew Lane, Elm Street, Aspinall Street, Silver Street, Sherwood Crescent, Templeton Road, Lormax Street, Stephen Street, Davies Street, Victoria Street, and Gas Street.

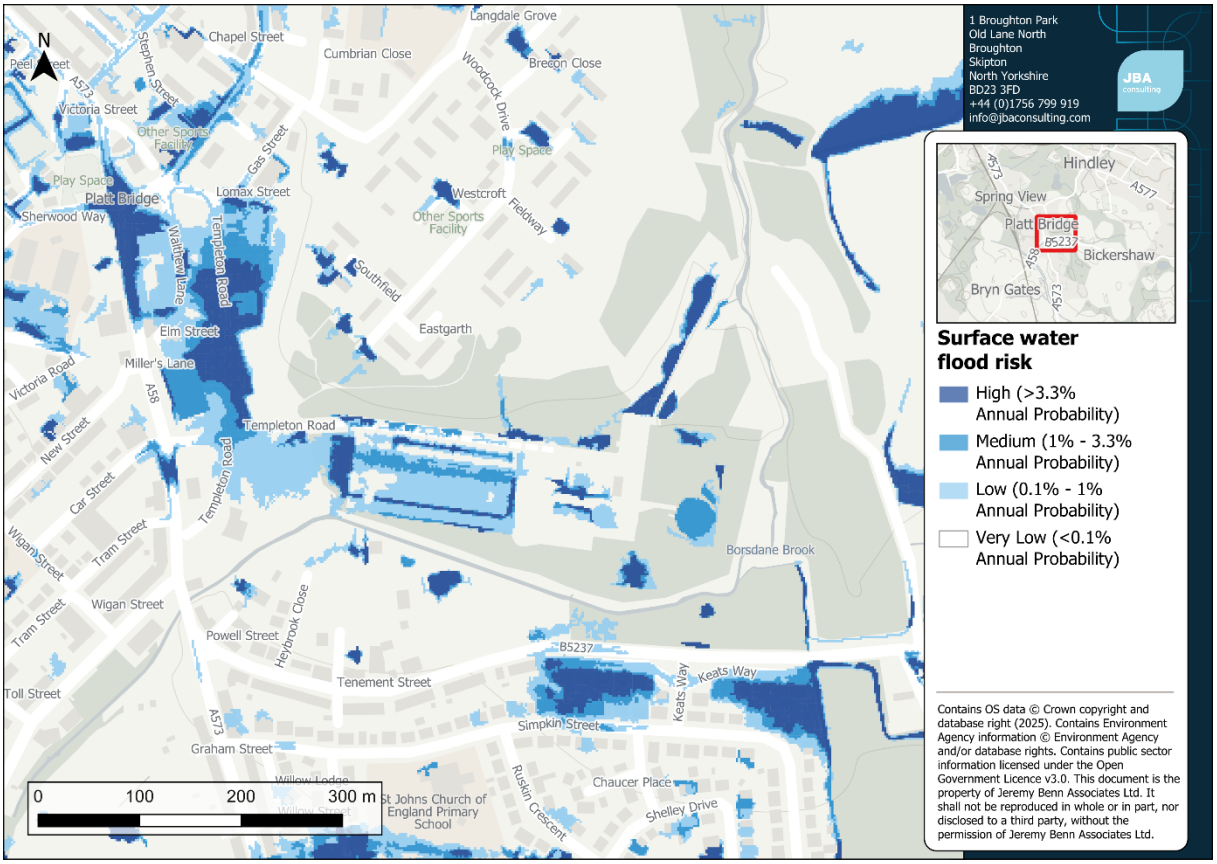


Figure 3-3: The Environment Agency's Risk of Flooding from Surface Water mapping for the study area.

3.1.3 Groundwater flood risk

Flooding from groundwater occurs when the water table within the underlying rock or soil rises above ground level or interacts with properties or infrastructure below ground level. No groundwater flooding data was available for this Section 19 flood investigation; however, it is noted that there were reports of water rising up through the ground and coming up through the floors of properties from several residents along Bickershaw Lane during the 1 January 2025 flood event.

3.1.4 Sewer flood risk

Sewer flooding occurs when intense rainfall/river flooding overloads sewer capacity (surface water or combined), and/or when sewers cannot discharge to watercourses due to high water levels. Sewer flooding can also be caused by blockages, collapses, equipment failure, or groundwater leaking into sewer pipes.

Since 1980, the Sewers for Adoption guidelines and subsequent Sewer Sector Guidance mean that new surface water sewers have been designed to have capacity for a 3.3% annual probability rainfall event, although until recently this did not apply to smaller private systems. This means that the capacity of sewers can be exceeded in larger rainfall and flood events. These guidelines do not apply to sewers constructed prior to 1980, which

includes those in Platt Bridge, and therefore these sewers may have been designed to a lower capacity.

Details of the sewer system in Platt Bridge can be found in Section 2.4.2. In the study area there are three pumping stations which rely on electricity to function, and as a consequence these can cause flooding issues from the sewer network should they lose power. Both Templeton Road and Bickershaw Lane pumping stations are shown to be at fluvial flood risk, in a 1% annual probability and 0.1% annual probability event respectively, which presents an additional vulnerability, as the pumping stations may become inoperable or lose power should they become flooded.

During times of high flow in the watercourses, surface water outfalls into these watercourses can become submerged limiting the rate at which they can discharge and potentially allowing river water to back up via the sewer system.

3.2 Flood history

Table 3-1 details the known flood history in Platt Bridge, since 2000. The most significant fluvial flood event prior to the 1 January 2025 event occurred on 26 December 2015 and is the last reported incident in the Templeton Road area. However, residents in the Bickershaw Lane area have reported regular issues with surface water and sewer flooding, with increased frequency of flooding over the past couple of years. Just over 78% of residents who responded to the questionnaire answered that they had experienced flooding in the vicinity of their property prior to 1 January 2025.

Table 3-1: Flood history for Platt Bridge.

Date	Source of flooding	Description of impacts	Source of information
28-29 October 2000	Ordinary Watercourse	Overtopping of Brookside Brook Drain resulting in internal flooding to 4 properties on Keats Way.	Environment Agency's Recorded Flood Outlines dataset
2002	Sewer	Sewer flooding on Bickershaw Lane. Extent and number of properties impacted unknown.	Questionnaire response
26 December 2015	Main River, Ordinary Watercourse, Surface Water	18 properties in Platt Bridge were identified to have flooded as a result of Hey Brook overtopping along the right bank. Surface water flooding is also reported to have contributed as the culvert/highway drain on Platt Street was severely blocked by tree roots and issues may have been exacerbated due to the high levels in the receiving watercourse (Hey Brook). Brookside Brook Drain could not	Greater Manchester S19 Report (greatermanchester-ca.gov.uk) Environment Agency's Recorded Flood Outlines dataset Questionnaire response

Date	Source of flooding	Description of impacts	Source of information
		discharge due to high levels in Brookside Brook and Hey Brook. This caused the pedestrian bridge at the end of Keats Way to surcharge and the water backed up into properties on Keats Way and Simpkin Street.	
January 2021	Surface Water / Sewer	External property flooding as a result of the drainage systems along Bickershaw Lane being overwhelmed. It is unknown if any internal property flooding occurred however the Wigan Council Section 19 criteria was not met (i.e. less than 5 properties reported internal flooding).	Questionnaire response
23 July 2023	Surface Water / Sewer	External property flooding as a result of the drainage systems along Bickershaw Lane being overwhelmed. It is unknown if any internal property flooding occurred however the Wigan Council Section 19 criteria was not met (i.e. less than 5 properties reported internal flooding).	Questionnaire response
30 September 2024	Surface Water / Sewer	External property flooding as a result of the drainage systems along Bickershaw Lane being overwhelmed. It is unknown if any internal property flooding occurred however the Wigan Council Section 19 criteria was not met (i.e. less than 5 properties reported internal flooding).	Wigan Council Questionnaire response
16 October 2024	Surface Water / Sewer	External property flooding as a result of the drainage systems along Bickershaw Lane being overwhelmed. It is unknown if any internal property flooding occurred however the Wigan Council Section 19 criteria was not met (i.e. less than 5 properties reported internal	Questionnaire response

Date	Source of flooding	Description of impacts	Source of information
		flooding).	

3.3 Existing flood risk management activities

3.3.1 Existing defences

There are no formal flood defences in place along Hey Brook, Brookside Brook, or Brookside Brook Drain within the Platt Bridge area.

Three small scrapes have been installed upstream of Bickershaw Lane along the path of Brookside Brook Drain to capture overland flow (Figure 3-4). However, it has been noted that the scrapes are relatively ineffective, due to the soft ground. During a Bickershaw Lane Flood Action Group meeting on 1 April 2025, residents explained that the scrapes have also not held flows as they are inundated by groundwater.

Figure 3-4: Scrape installed upstream of Bickershaw Lane along Brookside Brook Drain.

3.3.2 Property Flood Resilience

PFR includes a range of measures, such as flood barriers and automatically closing airbricks, that can be installed around the perimeter of a building to reduce the risk of internal flooding. PFR can also be used within a building to minimise damage if internal flooding stills occurs. PFR aims to help households and businesses reduce the damage caused by flooding, helping to speed up recovery and reoccupation.

It was reported that PFR was offered to residents of Platt Bridge following the December 2015 flood event, however the funding mechanism which required residents to initially fund the measures themselves followed by reimbursement led to relatively low uptake.

3.3.3 Community resilience

Residents in the Bickershaw Lane area have taken steps to improve their preparedness and resilience to flooding. They have installed a gauging stick and camera on the Brookside Brook Drain culvert under Bickershaw Lane to monitor the level in the watercourse. The camera is installed on a fence and designed to be kept permanently in place and record constantly.

3.3.4 Maintenance regimes

In the absence of any formal defences, the existing maintenance regimes consist of watercourse and surface water/sewer network maintenance. The frequency of gully cleansing may impact surface water flood risk as blocked gullies prevent water from entering the drainage network. Wigan Council maintain priority gulleys on an annual basis and aim to maintain other gulleys on a three-year cycle. They also undertake reactive maintenance following reports of issues.

4 Roles and responsibilities

For the purposes of this investigation, responsibilities for flood risk are divided into 'flood risk management' and 'emergency response'. Section 4.1 describes the roles of the agencies and authorities involved in flood risk management and Section 4.2 covers the roles and responsibilities for those involved in emergency response.

It should be noted that the following sections provide a high-level overview of the flood risk management roles and responsibilities that are relevant to this Section 19 flood investigation. They do not provide a comprehensive review of all roles and responsibilities.

4.1 Flood risk management roles and responsibilities

Flood risk in England is managed by a range of different RMAs as set out in the Flood and Water Management Act 2010 (gov.uk). The Flood and Water Management Act places a duty on all RMAs to co-operate with each other, act in a manner that is consistent with the National Flood and Coastal Erosion Risk Management Strategy for England (gov.uk) and the local flood risk management strategies developed by LLFAs, and exchange information.

The Flood and Water Management Act defines a "Flood risk management function" which are functions set out within the Act which may be exercised by an RMA for a purpose connected with flood risk management.

4.1.1 Environment Agency

The Environment Agency is sponsored by the Government's Department for Environment, Food & Rural Affairs (Defra), and is tasked with the protection and conservation of the water environment in England, the natural beauty of rivers and wetlands, and the wildlife that lives there.

The Environment Agency's responsibilities include water quality and resources; fisheries; conservation and ecology; and operational responsibility for managing the risk of flooding from main rivers (usually large streams and rivers), reservoirs, estuaries and the sea.

The Environment Agency has powers to carry out maintenance of watercourses when it is affordable and in the public interest. This includes work to prevent environmental damage, or to restore conditions where damage has already been done. However, the Environment Agency do not have a duty to maintain watercourses, as this responsibility lies with the landowner (see Section 0).

Flood risk management work can include constructing and maintaining 'assets' (such as flood banks or pumping stations); works to main rivers to manage water levels and to make sure flood water can flow freely; operating flood risk management assets during a flood; channel maintenance on the river; issuing flood warnings; and responding to incidents.

The Environment Agency also has a strategic overview of all sources of flooding and coastal erosion (as defined in the Flood and Water Management Act 2010). As part of this role they develop long term approaches to flood and coastal erosion risk management in

England which includes developing and applying the National Flood and Coastal Erosion Risk Management Strategy for England (gov.uk). The strategy shows how communities, the public sector and other organisations can work together to manage this risk.

4.1.2 Lead Local Flood Authority

LLFAs were established under the Flood and Water Management Act 2010, which sets out their roles and responsibilities. They are county councils or unitary authorities and are responsible for managing the risk of flooding from surface water, groundwater, and ordinary watercourses (non-main rivers) and lead on community recovery.

The LLFA has powers under the Land Drainage Act 1991 to regulate ordinary watercourses to maintain a proper flow. They can do this by issuing consents for altering, removing or replacing certain structures of features, as well as enforcing obligations to maintain flow and repair watercourses, bridges, and other structures.

The LLFA has powers to carry out maintenance of ordinary watercourses when it is affordable and in the public interest. However, the LLFA do not have a duty to maintain watercourses, as this responsibility lies with the landowner (see Section 0).

The LLFA is also responsible for developing, maintaining, and applying a strategy for local flood risk management in their area, and for maintaining a register of flood risk assets.

Wigan Council is the LLFA for Platt Bridge.

4.1.3 Water and sewerage company

Water and sewerage companies are responsible for managing the risks of flooding from surface water and foul or combined public sewer systems providing drainage from buildings and yards.

United Utilities is the water and sewerage company for Platt Bridge.

4.1.4 Highway Authority

Highway Authorities are responsible for providing and managing highway drainage and roadside ditches and must ensure that road projects do not increase flood risk. They are also a riparian owner and responsible for sections of watercourses where these are crossed by a highway bridge.

The Highway Authority for Platt Bridge is Wigan Council.

4.1.5 Riparian landowners

Riparian landowners who own land or property next to a river, stream or ditch, (including where this runs through a pipe or culvert), have rights and responsibilities over the management of the land including:

- a responsibility to let water flow through the land without any obstruction;
- prevent pollution;
- keep the banks clear of anything that could cause an obstruction and increase flood risk;
- maintain the bed and banks of the watercourse;
- control invasive species; and
- keep structures clear of debris.

There is more information on these rights and responsibilities in the Environment Agency online guidance 'Owning a watercourse' (gov.uk) and the Environment Agency publication Your watercourse: rights and roles (engagementhq.com).

4.1.6 Community

Property owners are responsible for looking after their own property, including the risks of water entering it and causing damage.

It is good practice for local residents to find out about any flood risk in the area, sign up for the Environment Agency's free flood warnings/alerts where available and make a written plan of how they will respond to a flood situation. Business owners should also make a flood plan for their business. There are measures that can be taken to reduce the amount of damage caused by flooding and properties at risk should be insured. Local residents can find out if their property is at risk, prepare for flooding, get help during a flood and get help after a flood.

4.2 Emergency response

Wigan Council, the Environment Agency, and the emergency services are Category 1 responders for flooding incidents across England, as defined by the Civil Contingencies Act 2004 (legislation.gov.uk). As Category 1 responders they are required to:

- assess the risk of emergencies occurring and use this to inform contingency planning;
- put in place emergency plans;
- put in place business continuity management arrangements;
- put in place arrangements to make information available to the public about civil protection matters and maintain arrangements to warn, inform and advise the public in the event of an emergency;
- share information with other local responders to enhance co-ordination;
- co-operate with other local responders to enhance co-ordination and efficiency; and

- provide advice and assistance to businesses and voluntary organisations about business continuity management (local authorities only).

Category 2 responders (which include transport and utility companies) are 'co-operating bodies'. They are less involved in the emergency planning work but heavily involved in emergencies which relate to their own services. They have a duty to co-operate and share relevant information with other Category 1 and Category 2 responders.

The Local Government Association (local.gov.uk) provide further information on the key roles and responsibilities during and after a flooding emergency.

4.2.1 Local Resilience Forum

LRFs are multi-agency partnerships made up of Category 1 responders, including the emergency services, local authorities, the National Health Service (NHS), the Environment Agency and others. LRFs are supported by Category 2 responders, such as the Highways Agency and public utility companies. The geographical area the forums cover is based on police areas.

The LRF is not a legal entity, nor does a Forum have powers to direct its members. Nevertheless, the Civil Contingencies Act 2004 and its Regulations provide that emergency responders, through the Forum, have a collective responsibility to plan, prepare and communicate for emergencies in a multi-agency environment.

The LRF for Platt Bridge is the Greater Manchester Resilience Forum (GMRF).

The Greater Manchester Resilience Strategy 2020-2030 (greatermanchester-ca.gov.uk) prepared by the GMRF identifies flood risk as one of the top risks in Greater Manchester.

The GMRF leads multi-agency emergence planning across the city-region through multi-agency joint working, co-ordinated through a clear shared structure. The Resilience Oversight Group oversees several sub-groups including the Commissioning Group for Training and Exercising and the Risks, Plans and Lessons Group.

The GMRF and supported by and work in partnership with the:

- Greater Manchester Local Authorities Chief Officers Group;
- Greater Manchester Local Health Resilience Partnership;
- Health Economy Resilience Group;
- Borough Resilience Groups; and
- Voluntary Sector and Community Forum.

Wigan Borough Resilience Forum are the Borough Resilience Group for Platt Bridge and work closely with Wigan Council as LLFA regarding flood risk issues in the area.

4.2.2 Flood warning service

The Environment Agency is the lead organisation for providing warnings of main river flooding. The Environment Agency's Flood Warning Service provide flood warnings and alerts based on constant monitoring and forecasting of flooding from rivers and sea. The Environment Agency sign up for Flood Warnings (gov.uk) page provides further information on how to sign up for these warnings.

The Environment Agency's Flood Warning Duty Officers are updated with forecasting information regularly each day via their Monitoring and Forecasting Duty Officers, whose role it is to interpret their local forecasting flood models. Where forecasting models predict that Flood Warning thresholds will be reached, these are passed to the Flood Warning Duty Officers for action. Other forecast updates are given as appropriate through the flood event, or when requested.

4.2.2.1 Flood Alerts

Flood Alerts are issued when there is water out of bank for the first time anywhere in the catchment, signalling that ‘flooding is possible’, and therefore Flood Alert Areas usually cover the majority of main river reaches.

There is currently one Flood Alert Area covering the Platt Bridge study area, named 'River Glaze catchment including Leigh and East Wigan' (code: 013WAFGL). The extent of this Flood Alert Area is shown in Figure 4-1, and covers parts of Platt Bridge including Templeton Road, Walthew Lane, and the eastern end of Keats Way East. This Flood Alert Area only relates to fluvial flood risk from Hey Brook/Borsdane Brook and Brookside Brook. The threshold for this Flood Alert is a depth of 2.1m at Lilford Park FW gauge.

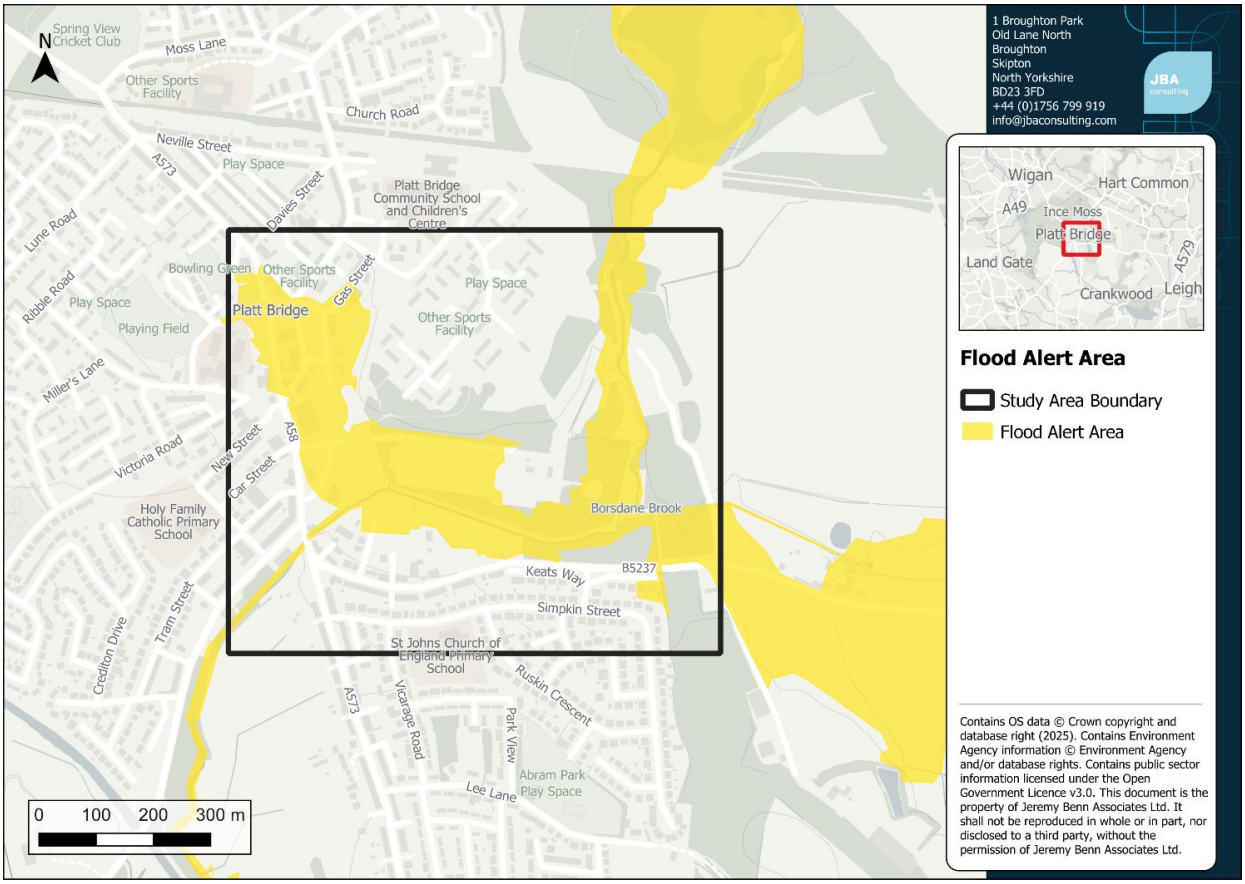


Figure 4-1: Extent of the Environment Agency's Flood Alert Area.

4.2.2.2 Flood Warnings

Flood Warnings are issued to designated Flood Warning Areas (properties within the extreme flood extent which are at risk of flooding), when the river level hits a certain threshold; this is correlated between the Flood Warning Area and the gauge, with a lead time to warn that 'flooding is expected'.

There are no Flood Warning Areas covering the Platt Bridge study area.

5 Hydrological summary of the event

The following sections provide a summary of the 1 January 2025 event, including the conditions leading up to the event, the rainfall and corresponding fluvial response during the event, and an estimation of the rainfall and fluvial return periods. Full details of the hydraulic analysis of the event can be found in Appendix A.

5.1 Hydrometric data

Figure 5-1 shows the locations of hydrometric data from river level and rain gauges in the vicinity of the study area. These include:

- five rain gauges within a 15km radius of the study area;
- one level gauge at First Avenue, 2.5km directly upstream of the affected locations on Borsdane Brook (the river catchment drains an area of 11km^2 to this point); and
- a flow gauge at Little Woolden Hall, 14.5km downstream on Glaze Brook. This location has a much larger drainage area of 160km^2 relative to the First Avenue gauge.

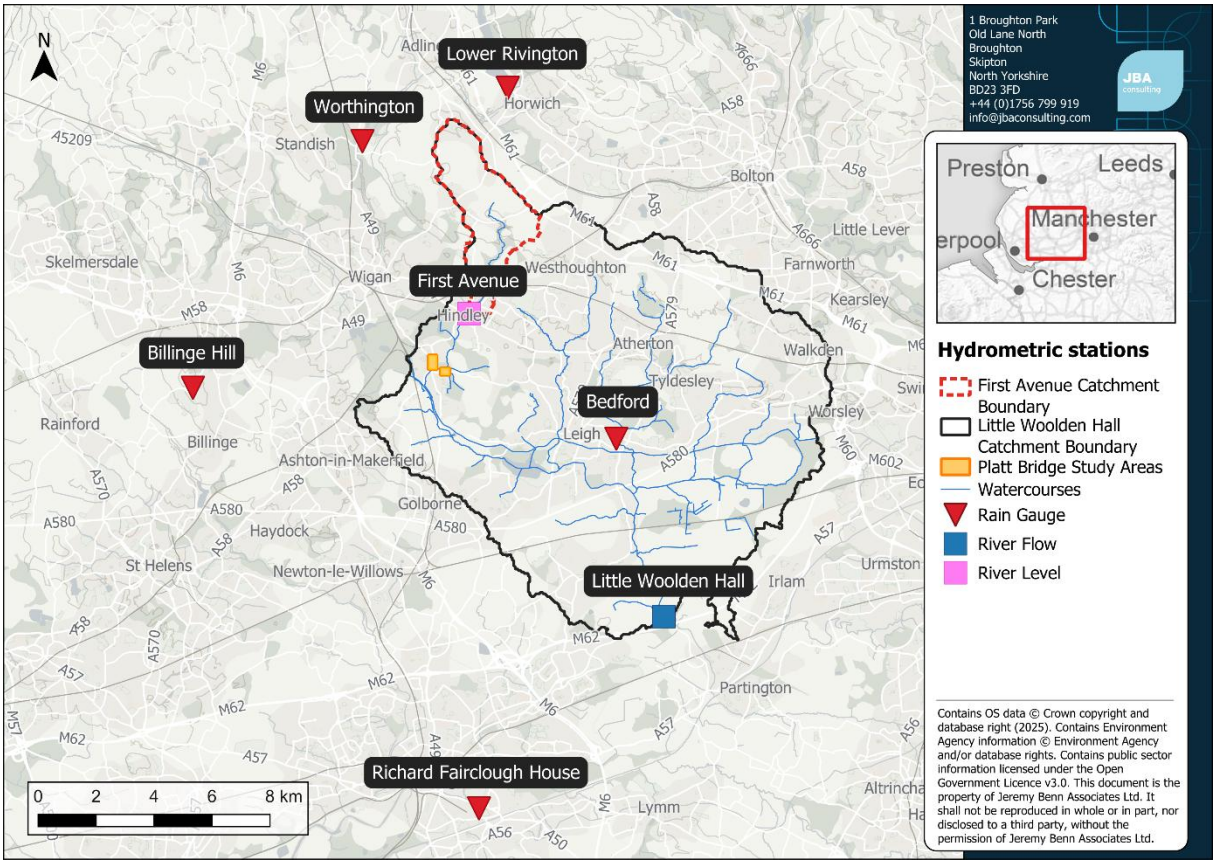


Figure 5-1: Hydrometric stations around Platt Bridge.

5.2 Conditions leading up to the event

A high-level review from the 'UK Water Resources Portal' (UK Centre for Ecology and Hydrology) indicates the overall average monthly rainfall and resulting river flows in December 2024 were 'Notably High' in the month leading to the 1 January 2025 flood event, relative to conditions in the long-term record for that time of year.

The local rain gauge data shows a more nuanced picture. Rainfall totals at the rain gauges show that the climatic antecedent conditions in the weeks and days leading up to the flood event were not particularly unusual. Omitting the flood event itself, the remaining summed December 2024 rainfall is not particularly notable at any nearby rain gauge, falling slightly below the long-term December monthly average. The December 2024 monthly rainfall was exceeded in 2023, 2015, 2012, 2011, and 1999 over the prior quarter-century, if including the 31 December to 1 January period in calculations.

5.3 Rainfall and fluvial response

15-minute resolution rainfall for 31 December 2024 to 2 January 2025 generally shows a double-peak rainstorm profile. The first high-intensity peak occurred around 18:00 to 21:00 on 31 December. 10mm - 20mm fell in this initial period. Rainfall persisted through the night to the morning, with a second high-intensity peak around 02:00 to 04:00 on 1 January. This was a heavier and more prolonged rainstorm period, with 30mm - 40mm falling.

Residents on Bickershaw Lane reported that water first started coming up via the external drains between 02:00 and 03:00 on 1 January 2025.

The fluvial response to this rainstorm varies when comparing recorded river levels at First Avenue and Little Woolden Hall. At the First Avenue gauge, Figure 5-2 shows:

- river levels rising around 19:00, reaching an initial peak (and remaining steady for the next five hours) at 22:00;
- the small drainage area here gives rise to a near instantaneous response to the second peak of rainfall, peaking around 04:30. The first rainstorm pulse exacerbated this peak, likely reducing soil moisture storage before the arrival of the second rainstorm peak; and
- a return to high baseflow conditions around 18:00 on 01 January, with river levels falling off gradually thereafter.

The Little Woolden Hall gauge on the River Glaze is far downstream of Platt Bridge. The fluvial response there is affected by lakes and storage areas between Platt Bridge and the gauging site. This gives a slower and more prolonged flood response here, relative to the First Avenue gauge, giving rise to a single fluvial flood peak around 11:00 on 1 January 2025.

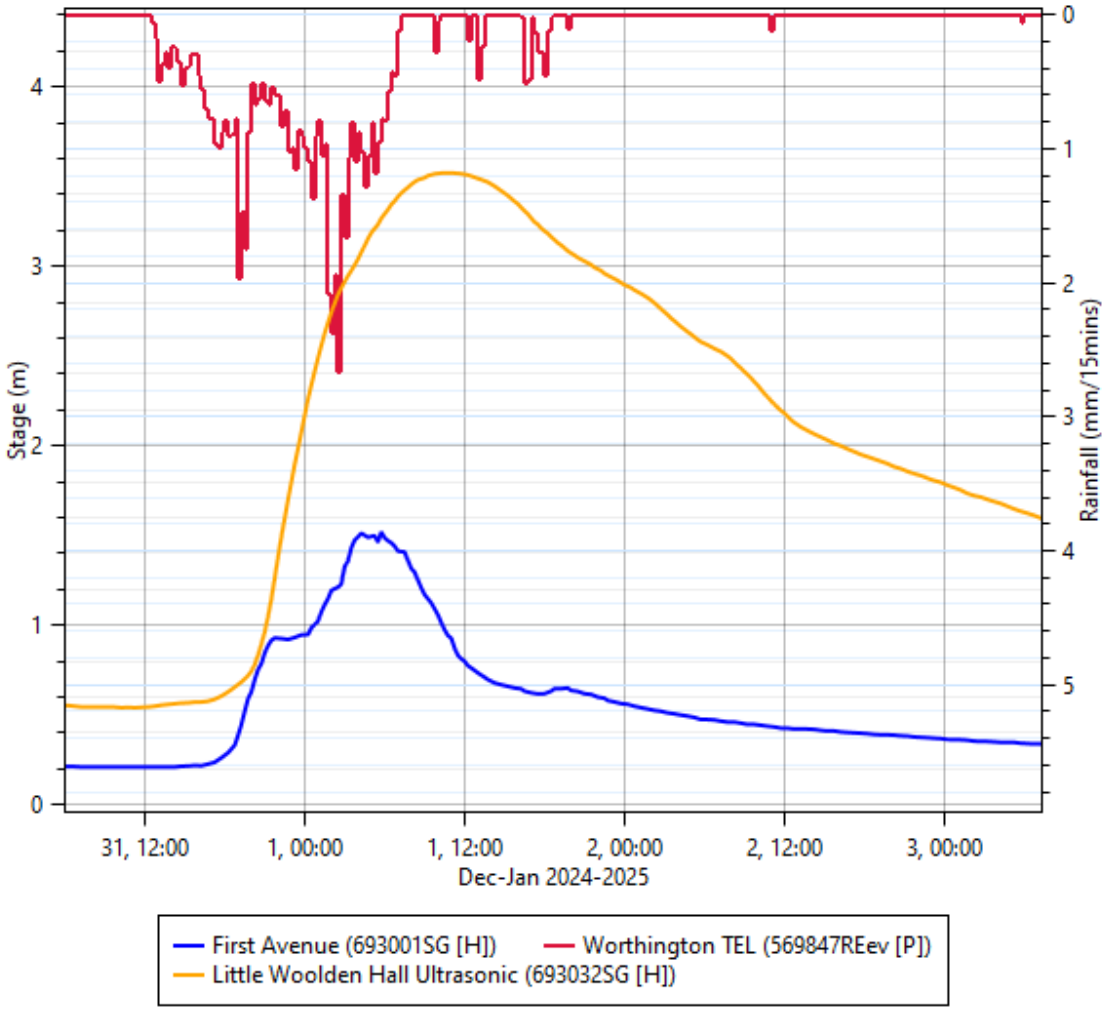


Figure 5-2: Fluvial response to the 1 January flood event at nearby river level gauges.

Whilst the exact time that Hey Brook overtopped is not known, residents along Templeton Road reported that the flooding started at around 07:00 on 1 January 2025.

Templeton Road pumping station was submerged by floodwater. United Utilities reported that the pumping station remained operable until Electricity North West isolated the supply to the whole area at 10:30 on 1 January 2025 due to safety concerns. This triggered United Utilities' Emergency Procedure, and they delivered an emergency generator by boat on 2 January 2025 at 08:00. United Utilities then accessed the pumping station at 13:00 on 2 January 2025 and restored the power.

Residents on Simpkin Street reported the water remaining for approximately 6 hours whilst residents on Bickershaw Lane reported the water did not subside enough for them to leave their homes until 5pm on 1 January 2025.

5.4 Rainfall return period estimation

The industry-standard Flood Estimation Handbook (FEH) Depth-Duration-Frequency (DDF) 2022 model (FEH22 model) estimates the rarity of observed rainstorms. The FEH22 model was applied in a rolling-window manner to the observed rainstorm data for the five nearby rain gauges, for various durations between 1 hour to 30 hours. The worst-case result was obtained for the 16-hour window across all gauges as shown in Table 5-1.

Table 5-1: Rainfall event rarity analysis for the 1 January 2025 event.

Rain gauge	Maximum rolling-window summed rainfall (mm)	FEH22 model event annual probability (%)
Lower Rivington	60.0mm	3.4%
Worthington	61.2mm	2.1%
Billinge Hill	48.3mm	9.2%
Bedford	57.6mm	2.8%
Richard Fairclough House	64.5mm	1.5%

The result is less extreme at Billinge Hill due to the lower intensity / more prolonged nature of the recorded rainfall there, relative to the other nearby gauges. The remaining gauges give a consistent result however, indicating a rainfall annual probability of around 1.5% - 3.5% for the 1 January event.

5.5 Fluvial event probability estimation

There are sufficient historic peak level / flow records at the First Avenue and Little Woolden Hall gauges to undertake a fluvial event analysis. However, large flood flows are known to bypass the First Avenue gauge, meaning that simple extrapolation of this modelled rating curve for events such as the 1 January 2025 peak will likely under-estimate the event peak flow, and hence also the corresponding event annual probability from a standard FEH analysis.

The fluvial flood is estimated to be around a 4% annual probability event but may have been a larger event in reality due to a lack of nearby high-quality flow data for small river catchments

5.6 Summary

Antecedent conditions in the weeks and days leading up to the 1 January 2025 event were not particularly unusual. This points to the rainstorm event itself being the main driver of the observed flooding in Platt Bridge. The double-peak nature of the rainstorm and its long duration were the combined main drivers of high fluvial flows in Hey Brook. The first rainfall peak (around 10 mm - 20mm) likely reduced soil storage in the catchment. The immediate occurrence of the second larger peak (30mm - 40mm) was exacerbated by this initial peak.

Applying standard FEH methods gives good agreement on the event annual probability, falling around a 1.5% - 3.5% annual probability for the rainfall itself. The resulting response

for river flows is estimated to have been around a 4% annual probability event but may have been a larger event in reality due to a lack of nearby high-quality flow data for small river catchments.

6 Source-pathway-receptor analysis

The Source-Pathway-Receptor model is a concept that can provide an understanding of all aspects of a flood hazard. It breaks down a flood incident into three key elements:

- **source**: the origin of flood water;
- **pathway**: a route or means through which a receptor can be affected by flooding; and
- **receptor**: the entities that can be adversely affected by flooding (e.g. people, property, infrastructure).

Available information was analysed to determine the main sources of flooding impacting the study area, the pathways it took, and the main receptors.

Photographs included in the following sections were taken during the site visit undertaken by JBA Consulting on 21 January and 14 February 2025. Section 0 also includes a screenshot of drone footage available on YouTube, showing flood extents across the Templeton Road area.

6.1 Templeton Road area

The findings for the Templeton Road area summarised in Figure 6-1. It should be noted that the mapping only shows specific gulleys and manholes that are known to have surcharged, however residents reported issues with the combined sewer system being overwhelmed in both areas which is further discussed in Section 6.1.1.

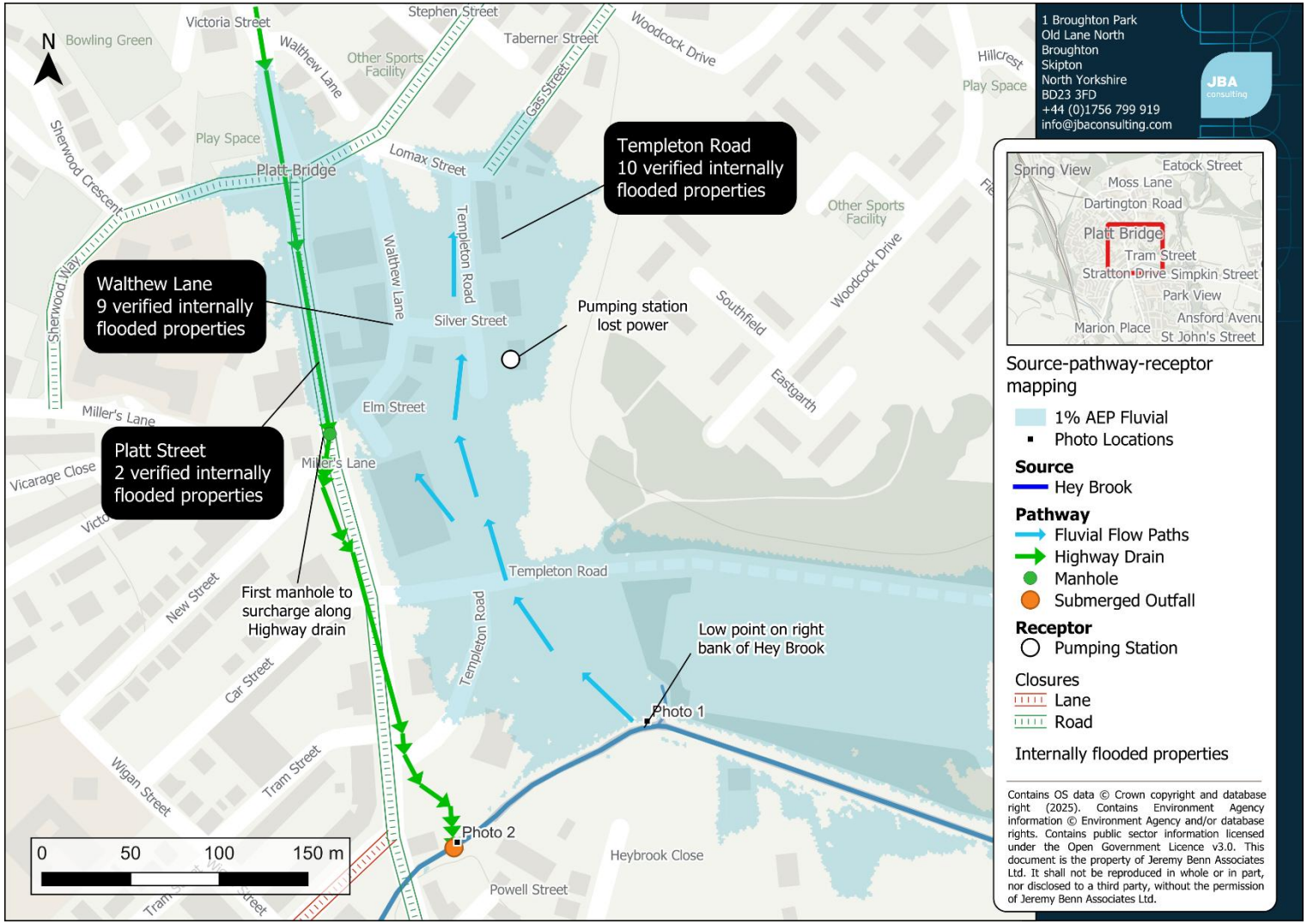


Figure 6-1: Source-Pathway-Receptor Mapping for the Templeton Road area.

6.1.1 Source

Extreme rainfall

Extreme rainfall falling in Platt Bridge and the surrounding area contributed to increased fluvial flows and the combined and surface water sewerage systems becoming overwhelmed. The rainfall event was observed to be double-peaked in nature and of a considerable duration with the first peak (around 10 mm - 20mm) likely reducing soil storage in the catchment and exacerbating the impact of the second larger peak (30mm - 40mm) which followed in quick succession. The rainfall event was calculated to have between a 1.5% and 3.5% annual probability (Section 5.4).

Hey Brook (Main River)

The extreme rainfall resulted in corresponding high fluvial flows in Hey Brook which overtopped along the right bank to the east of Templeton Road, where there is a low point along the bank (Photo 1). The fluvial response was calculated to correspond to at least a 4% annual probability event (Section 5.5).

The high water level in Hey Brook also meant that the highways drain which discharges into Hey Brook just upstream of the Warrington Road bridge was unable to discharge (Photo 2).

During the site visit undertaken by JBA Consulting, it was noted that there was evidence of obstructions in the channel in places as a result of fly-tipping (Photo 3), however given the volume of rainfall, this reduction in channel volume is unlikely to have had a considerable impact on the capacity of the channel and volume of floodwater overtopping the channel.

Photo 1: Low point on the right bank of Hey Brook (Source: JBA Consulting).

Photo 2: Highway drain outfall into Hey Brook (Source: JBA Consulting).

Photo 3: Channel obstruction due to fly tipping within Hey Brook (Source: JBA Consulting)

Combined sewer

Several residents reported the presence of foul sewage identified in the floodwater. Due to this, the combined sewer system is considered to have contributed to the flooding. Based on the hydrological analysis from the event, hydraulic overload to this system likely took place as a result of extreme rainfall. This would have resulted in both surface water and foul sewage emerging from the combined sewer manholes and mixing with floodwater.

6.1.2 Pathway

Residents along Templeton Road reported that the flooding started at around 07:00 on 1 January 2025. The main flow route in this area was floodwater flowing north from Hey Brook from the low point on the right bank where it overtopped. Water was reported to pool at the bottom of Templeton Road and in the Iceland car park, where depths are reported to have reach 1.6m, and then extended north along Templeton Road and Walthew Lane. The drainage system was also reported to be overwhelmed, with residents reporting surcharging external drains along Templeton Road and Walthew Lane and issues with the combined sewer system backing up.

Water from Hey Brook also backed up via the highway drain outfall into Hey Brook and surcharged via the highway gullies along Platt Street. The first highway gulley to surcharge was outside the Post Office on Platt Street.

6.1.3 Receptor

Drone footage from the event shows the flood extent and area impacted across the Templeton Road area (Figure 6-2).

Figure 6-2: Drone footage showing flood extents across the Templeton Road area (CP Overview, 2025)[1].

People

The event has caused significant disruption to the lives of the residents and businesses that were flooded. According to the questionnaire sent to residents (discussed in Section 1.4), financial losses have been incurred through the cost of house repairs and replacing damaged possessions. Energy bills also increased for some residents, due to the power required for dehumidifiers and heaters to dry the properties. A few residents commented on how the flooding would adversely affect their insurance premiums and property values. Dealing with the aftermath of the flood has also required some residents to take time off work. All the residents who responded to the questionnaire reported having to move to temporary accommodation.

The flood event has caused immense stress and has compromised the wellbeing and mental health of those impacted based on responses to the questionnaire. Responses to the questionnaire included comments on the challenges of being disabled and dealing with the event, and on the added pressures surrounding childcare and looking after elderly family members. The residents also discussed the distress resulting from losing sentimental belongings. Overall, the experience has generated anxiety about the future, including the

1 CP Overview (2025). *NEW YEAR FLOODS PART 2 - 2025 - Platt Bridge, Wigan Lancashire, drone footage*. [Video]. YouTube. https://www.youtube.com/watch?v=KrfpDKhp5P8 (last accessed 07/04/2025).

possibility that their homes could flood again. Many residents commented on the fear that they now associate with rainfall.

Several residents also reported feeling unsupported and unheard both during and after the event, and that the damage caused could have been avoided. These views are compounded by the flood event that had occurred recently in September 2024. Residents reported that they feel the timing of the event (New Year's Day) affected the available response.

Properties

In the Templeton Road area, the following properties are reported to have flooded internally:

- 7 residential properties and 3 commercial properties on Templeton Road;
- 3 residential properties and 6 commercial properties on Walthew Lane; and
- 2 commercial properties on Platt Street.

These numbers only include properties that have been verified through site visits by Chief Information Officers (CIOs) at the Environment Agency, properties that reported flooding to United Utilities, or through the questionnaire sent to residents (Section 1.4).

Residents on Templeton Road reported internal flood depths of between 900mm and 1.2m.

Pumping station

Templeton Road pumping station was partially submerged by floodwater. United Utilities reported that the pumping station remained operable until Electricity North West isolated the supply to the whole area at 10:30 on 1 January 2025 due to safety concerns. This triggered United Utilities' Emergency Procedure, and they delivered an emergency generator by boat on 2 January 2025 at 08:00 to restore power. United Utilities then accessed the pumping station at 13:00 on 2 January 2025 when the electricity supply was restored to return the pumping station to its normal operation.

It is uncertain whether the pumping station not running for from 10:30 on 1 January 2025 to 08:00 on 2 January 2025 was a contributing factor to the flooding, or to what extent it would have reduced its severity had it been in operation.

Infrastructure

The flooding event led to multiple road closures, including the following roads:

- lane closure on Lily Lane;
- road closure both sides of Warrington Road;
- road closure Sherwood Way;
- road closure Platt Street;
- road closure Liverpool Road; and
- road closure Gas Street.

Templeton Road pumping station was flooded and United Utilities reported that the pumping station continued to operate until Electricity North West isolated the supply to the area.

Hindley pumping station was not affected. However, the adjacent solar panel area was impacted and access to the pumping station was not possible during the flood event, as the access road that leads from Templeton Road was flooded. This restricted access for United Utilities and other companies, including telecommunications.

Services

The flooding led to the closure of local services, including the post office, supermarket, and other local businesses which experienced internal flooding. This led to disruption to public amenities and impacted local businesses. Residents also reported that there were difficulties around accessing telecommunications masts, which resulted in internet connectivity issues.

6.2 Bickershaw Lane area

The findings for the Bickershaw Lane area are summarised in Figure 6-3. It should be noted that the mapping only shows specific gulleys and manholes that are known to have surcharged, however residents reported issues with the combined sewer system being overwhelmed in both areas which is further discussed in Section 6.2.1.

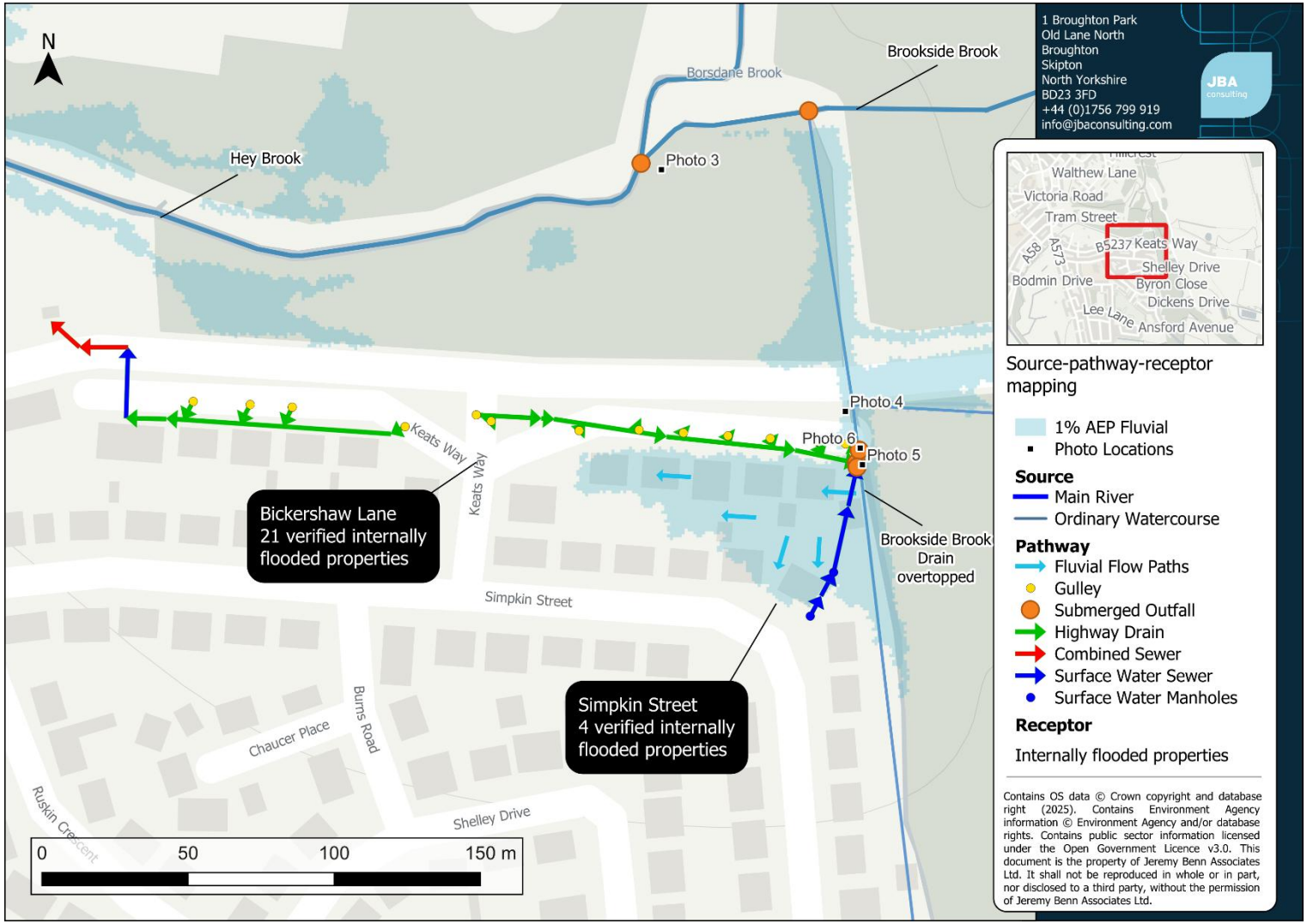


Figure 6-3: Source-Pathway-Receptor Mapping for the Bickershaw Lane area.

6.2.1 Source

Extreme rainfall

Extreme rainfall falling in Platt Bridge and the surrounding area contributed to increased fluvial flows and the combined sewerage system becoming overwhelmed. The rainfall event was observed to be double-peaked in nature and of a considerable duration with the first peak (around 10 mm - 20mm) likely reducing soil storage in the catchment and exacerbating the impact of the second larger peak (30mm - 40mm) which followed in quick succession. The rainfall event was calculated to have between a 1.5% and 3.5% annual probability (Section 5.4).

Hey Brook and Brookside Brook Drain

The extreme rainfall resulted in corresponding high fluvial flows in Hey Brook. High water levels in Hey Brook restricted flow from Brookside Brook discharging into it. This in turn prevented Brookside Brook Drain discharging into Brookside Brook. The water level within Brookside Brook Drain built up upstream of the culvert which runs beneath Bickershaw Lane (Photo 4) and eventually overtopped to the east of Keats Way.

The high level in Brookside Brook Drain also meant that the outfalls of the highway drainage for Keats Way East and the United Utilities surface water sewer which takes surface water from the south were submerged (Photo 5 and Photo 6).

Photo 4: Culvert where Brookside Brook drain passes beneath Bickershaw Lane (Source: JBA Consulting).

Photo 5: United Utilities surface water sewer which outfalls into Brookside Brook Drain. The Highway drain outfall is situated to the right (Source: JBA Consulting).

Photo 6: Highway outfall pipe into Brookside Brook Drain (Source: JBA Consulting).

Combined sewer

Several residents reported the presence of foul sewage identified in the floodwater. Due to this, the combined sewer system is considered to have contributed to the flooding. Based on the hydrological analysis from the event, hydraulic overload to this combined system likely took place as a result of extreme rainfall. This would have resulted in both surface water and foul sewage emerging from the combined sewer manholes and mixing with floodwater.

6.2.2 Pathway

Keats Way East and Simpkin Street

Residents on the east side of Bickershaw Lane reported that water first started coming up via the external drains between 02:00 and 03:00 on 1 January 2025. Floodwater from Brookside Brook Drain backed up via the outfalls of the highway drainage and surcharged from the highway gullies along Keats Way East. The floodwater then flowed south and approached the properties (flow paths shown in Figure 6-3). The outfall of the highway drain is at bed level which meant that the outfall was submerged early in the flood event.

Residents on Simpkin Street also reported a manhole surcharging which is likely to have been a result of water backing up via the United Utilities surface water sewer which also has an outfall into Brookside Brook Drain at bed level.

The water level in Brookside Brook Drain continued to rise and Brookside Brook Drain is reported to have overtopped at approximately 5am. Floodwater from the watercourse flowed west towards the properties along Bickershaw Lane and from Bickershaw Lane then flowed southwards onto the northeast corner of Simpkin Street. The flow paths are shown

in Figure 6-3. Residents on Simpkin Street reported being impacted by flooding from approximately 6am.

Residents on Bickershaw Lane also reported water rising up through the ground and though the floors of their properties.

Keats Way West

Residents on the west side of Bickershaw Lane reported that the flooding started between 02:00 and 03:00. Water is reported to have risen up through the ground and also risen up via the surface water drainage gulleys and fall drains as the combined and surface water sewerage system was completely overwhelmed.

6.2.3 Receptor

People

The event has caused significant disruption to the lives of the residents and businesses that were flooded. According to the questionnaire sent to residents (discussed in Section 1.4), financial losses have been incurred through the cost of house repairs and replacing damaged possessions. Energy bills also increased for some residents, due to the power required for dehumidifiers and heaters to dry the properties. A few residents commented on how the flooding would adversely affect their insurance premiums and property values. Dealing with the aftermath of the flood has also required some residents to take time off work. 80% of residents who responded to the questionnaire reported having to move to temporary accommodation.

The flood event has caused immense stress and has compromised the wellbeing and mental health of those impacted based on responses to the questionnaire. Responses to the questionnaire included comments on the challenges of being disabled and dealing with the event, and on the added pressures surrounding childcare and looking after elderly family members. The residents also discussed the distress resulting from losing sentimental belongings. Overall, the experience has generated anxiety about the future, including the possibility that their homes could flood again. Many residents commented on the fear that they now associate with rainfall.

Several residents also reported feeling unsupported and unheard both during and after the event, and that the damage caused could have been avoided. These views are compounded by the flood event that had occurred recently in September 2024. Residents reported that they feel the timing of the event (New Year's Day) affected the available response.

Properties

In the Bickershaw Lane area 21 residential properties along Bickershaw Lane are reported to have flooded internally and 4 residential properties on Simpkin Street.

These numbers only include properties that have been verified through site visits by Chief Information Officers (CIOs) at the Environment Agency, properties that reported flooding to United Utilities, or through the questionnaire sent to residents (Section 1.4).

Residents along the east side of Bickershaw Lane reported internal flood depths of at least 600mm with external flood depths to the front of the properties reaching 900mm. Residents on Simpkin Street reported similar flood depths. A resident on the west side of Bickershaw Lane reported lower internal flood depths of approximately 75mm.

Services

The flooding led to the closure of local services, including the post office, supermarket, and other local businesses. This led to disruption to public amenities and impacted local businesses. Residents also reported that there were difficulties around accessing telecommunications masts, which resulted in internet connectivity issues.

7 Incident response

Several agencies responded to the flood event in Platt Bridge including Wigan Council, Greater Manchester Fire and Rescue, United Utilities, Electricity North West, and the Environment Agency. A timeline of the incident response is given in Table 7-1.

7.1 Flood warnings

7.1.1 Met Office

The first indication of the flood risk in Greater Manchester was at 10:30 on Monday 30 December 2024 when the Met Office Flood Guidance Statement indicated a Yellow (Low) flood risk for Greater Manchester on New Year's Eve and extended their existing Yellow warning of rain to include the Greater Manchester region. A post-flood report (greatermanchester-ca.gov.uk) from the Greater Manchester Combined Authority stated that the flood risk was never forecasted as Amber or Red (Medium or High) on the Met Office Flood Guidance Statement, so the Strategic and Borough Flood Plans were not triggered.

The Met Office Yellow warning of rain was further updated on the morning of Tuesday 31 December 2024, bringing forward the rain warning with a lead time of 4 hours. A Met Office Amber warning of rain was issued at 20:38 on Tuesday 31 December 2024, however this did not cover the Platt Bridge area.

7.1.2 Environment Agency Flood Alerts and Flood Warnings

A Flood Alert for the 'River Glaze catchment including Leigh and East Wigan' which covers the Platt Bridge area was issued by the Environment Agency at 06:03 on Wednesday 1 January 2025.

No Flood Warning was issued for this event as Platt Bridge is not covered by an Environment Agency Flood Warning.

7.2 Incident response

There was a Flood Advisory Service Teleconference at 21:30 on 31 December 2024 where the decision was made to escalate this to a Tactical Coordinating Group meeting. The Greater Manchester Tactical Coordinating Group was activated at 01:00 on Wednesday 1 January 2025.

The Wigan Council Forward Incident Officer began responding to calls from residents at 02:15, including consulting Highways for road closures, requesting sand bags, and liaising with residents requiring evacuation.

Greater Manchester declared a major incident at 06:45 and the Strategic Coordinating Group was activated.

Calls in the Platt Bridge area increased significantly at 08:25. Response was prioritised for the Platt Bridge area due to the volume of calls and reports of residents in distress.

There were multiple road closures, enforced by a contractor for Wigan Council, including both sides of Warrington Road, Sherwood Way, Platt Street, Liverpool Road, Gas Street, and a lane closure on Lily Lane.

Greater Manchester Fire and Rescue responded to reports of trapped individuals and unsafe dwellings. They evacuated 12 residents along Templeton Road and 10 residents along Walthew Lane. Residents were either carried to safety or transported using inflatable watercraft provided by Greater Manchester and Rescue's water incident unit stations, based at Eccles and Heywood. Appliances were also used to pump flood water out of properties and from the road network.

Alarms on the pumping stations alerted United Utilities who attended. Once on site, United Utilities liaised closely with Wigan Council, the Environment Agency, the Emergency Services (Police, Fire), and Electricity North West.

Wigan Council set up a rest centre at Ashton Leisure Centre. Wigan Council transported residents to the rest centre from Platt Bridge and provided emergency accommodation.

7.2.1 Questionnaire responses

Two respondents to the questionnaire, detailed in Section 1.4, reported that they had PFR measures in place at their property deployed at the time of the flooding. One respondent reported that their PFR was not effective as they have a flood door in place, but water entered the property via the brickwork. A further respondent reported they had sandbags which they deployed during the event, but these were not effective, and water entered the property.

Respondents to the questionnaire were asked if they received a response from emergency services, the Council, the Environment Agency or any other authority during, or after the event. Generally, respondents reported a limited response during the event itself, particularly in the Bickershaw Lane/Simpkin Street area. Several respondents reported contacting United Utilities or Wigan Council and being advised that they were aware of the issues not receiving any further response during the flood event.

Respondents to the questionnaire in the Bickershaw Lane area reported that they felt the response was concentrated on the centre of Platt Bridge, rather than in the Bickershaw Lane area. This aligns with respondents from the Templeton Road area who reported a greater response. One respondent reported the Fire and Rescue Service were out responding in the area for two days, alongside Electricity North West and representatives from Wigan Council. Respondents also reported that representatives from Wigan Council were active at the time of the flooding and in the immediate aftermath.

Table 7-1: Timeline of incident response at Platt Bridge.

Date	Time	Location	Source	Details
01/01/2025	04:52	Bickershaw Lane	Wigan Council Action Logs	Forward Incident Officer attended Bickershaw Lane, no house number provided and no visible water entering properties.
01/01/2025	07:49	Platt Bridge	Wigan Council Action Logs	Tactical Commander provided list of calls which included Templeton Road, Platt Bridge Main Roundabout, and Bickershaw Lane (including Keats Lane). Forward Incident Officers deployed.
01/01/2025	08:25	Platt Bridge	Wigan Council Action Logs	Tactical Commander provided further list of calls which included further calls in the Platt Bridge area. Decision for nearest available Forward Incident Officer to prioritise Platt Bridge due to increased numbers of calls and reports of residents in distress.
01/01/2025	10:30	Templeton Road pumping station	United Utilities	Electricity North West isolated the supply to the whole area due to safety concerns.
01/01/2025	12:17	Platt Bridge	Online media	The local Member of Parliament visited the area and posted a video on social media advising those not in the area to stay away, and those in the area to comply with requests from the emergency services.
01/01/2025	17:27	Platt Bridge McDonalds	Online media	Electricity North West supplied a generator at the Platt Bridge McDonalds which was opened to offer food and drink to customers of Electricity North West.
02/01/2025	08:00	Templeton Road pumping station	United Utilities	Arranged emergency procedures on 02/01/2025 08:00 including an alternative supply of power via generator.
02/01/2025	13:00	Templeton Road pumping station	United Utilities	On request of the emergency services, United Utilities accessed the pumping station and restored the power.

7.3 Subsequent actions

Greater Manchester Fire and Rescue Service reported that they held tactical debriefs at the scene. Their crews attended affected properties in the area to carry out Home Fire Safety assessments, with focus on correct and safe use of heaters/humidifiers and checking for vulnerable residents. Local commanders attended Tactical Coordinating Groups to assist with collaborating information, such as the number of dwellings, the number of persons, and the correct addresses etc. Their Organisational Learning and Operational Assurance Team are gathering information from crews that attended flooding across the whole of Greater Manchester in order to gather learning points and areas of notable practice that can be shared across the service to improve future response to incidents.

Residents in the Bickershaw Lane/Simpkin Street area reported that the local Member of Parliament and local councillors attended the area once the floodwater had receded to look at the damages. Residents on Templeton Road reported getting assistance in the immediate aftermath from Wigan Council which included helping them access electricians, and emergency accommodation. Wigan Council also provided skips for flooded properties along Bickershaw Lane, Templeton Road, and Walthew Lane.

Following the event, the Environment Agency conducted research to verify the flooded properties. The Environment Agency have also completed inspections of the river banks and assets along Hey Brook and concluded no river assets had failed. They also removed four trees that had fallen into Hey Brook plus other debris.

The residents along Bickershaw Lane have installed a small pipe on the east side of Bickershaw Lane to drain water from the surface of Bickershaw Lane into Brookside Brook Drain.

8 Conclusions, lessons learnt, and recommendations

8.1 Conclusions and lessons learnt

The flooding that occurred in Platt Bridge on 1 January 2025 is reported to have caused internal flooding to at least 35 residential properties and 11 commercial properties. Wigan Council, as the LLFA for Platt Bridge, has exercised their duty to undertake a Section 19 flood investigation, as the event fulfils the criteria set by Wigan Council. The Council has appointed JBA Consulting to undertake this investigation on its behalf.

Antecedent conditions in the weeks and days leading up to the 1 January 2025 event were not particularly unusual. This points to the rainstorm event itself being the main driver of the observed flooding in Platt Bridge. The double-peak nature of the rainstorm and its long duration were the combined main drivers of high fluvial flows in Hey Brook. The first rainfall peak (around 10 mm - 20mm) likely reduced soil storage in the catchment. The immediate occurrence of the second larger peak (30mm - 40mm) was exacerbated by this initial peak. Calculations suggest the rainfall event was between a 1.5% and 3.5% annual probability event. The resulting response for river flows is estimated to have been around a 4% annual probability event but may have been a larger event in reality due to a lack of nearby high-quality flow data for small river catchments.

The key source of flood risk in the Templeton Road area was overtopping of Hey Brook following extreme rainfall, with fluvial floodwater flowing in a northerly direction and impacting properties along Walthew Lane, Templeton Road, and Platt Street. The flooding was exacerbated by the highway drainage backing up as a result of the outfall into Hey Brook being submerged due to high flows, and the combined sewerage system and surface water systems being overwhelmed due to the volume of rainfall.

In the Bickershaw Lane there were several flood risk mechanisms that resulted in the flooding on 1 January 2025. Residents reported water from Brookside Brook Drain backing up and surcharging via the surface water drainage due to submergence of the outfalls a couple of hours before the watercourse overtopped, with fluvial flooding impacting properties on the east of Bickershaw Lane and Simpkin Street. The combined and surface water sewerage systems in the area were overwhelmed due to a combination of the volume of rainfall and high river flows submerging outfalls. Residents along Bickershaw Lane also reported groundwater emergence and water seeping into their properties via the floors.

Advance warnings were not sufficiently provided for the flooding across the wider Greater Manchester area. The flood risk was never forecasted as Amber or Red (Medium or High) on the Met Office Flood Guidance Statement, so the Strategic and Borough Flood Plans were not triggered. A Met Office Amber warning of rain was issued at 20:38 on Tuesday 31 December 2024, however this did not cover the Platt Bridge area. The occurrence of the flood event on a public holiday (New Year's Day) may have also played a factor in the ability of agencies to respond. However, several agencies responded to the flooding event

in Platt Bridge including Wigan Council, Greater Manchester Fire and Rescue, United Utilities, Electricity North West, and the Environment Agency. Wigan Council responded to calls from residents, provided sandbags and arranged road closures. Greater Manchester Fire and Rescue evacuated several residents and used appliances pump flood water out of property and from the road network. Electricity North West isolated the electricity supply to the area following safety concerns and set up a refuge for customers at a local MacDonalds. United Utilities provided a temporary generator via boat to restore power at the Templeton Road pumping station. Questionnaire responses from residents in the Bickershaw Lane area highlighted they felt that the response was concentrated on the centre of Platt Bridge, rather than in the Bickershaw Lane area. This aligns with respondents from the Templeton Road area who reported a more positive response from agencies both during and following the flood event.

During and after the flood event there were road closures in place and disruption to local services, with flooding of the post office, supermarket, and other local businesses. Residents also reported that there were difficulties around accessing telecommunications masts, which resulted in internet connectivity issues. Templeton Road pumping station was also inoperable for several hours due to Electricity North West isolating power to the area, but it is unknown whether, and to what extent, this exacerbated the flood risk issues.

Several residents have reported being displaced, living in temporary accommodation since the flood event and damage to their homes and loss of possessions. Several residents have noted the significant negative impacts this has had on their physical and mental health.

The flood event in Platt Bridge occurred due to fluvial flooding from Hey Brook, which subsequently combined with a series of interacting flood risk mechanisms in the vicinity, including surface water, sewer, and groundwater. A series of recommended actions for the RMAs and stakeholder organisations have been made in Section 8.2. These focus on partnership working to address the interacting flood risk mechanisms, rather than addressing different sources in isolation.

8.2 Recommendations

Flooding in this area is reported to come from a combination of sources, and it is important that all recommendations in are taken forward on the basis that flooding issues in this area cannot be managed through one source in isolation.

8.2.1 Templeton Road area

The Environment Agency should continue with the ongoing feasibility and optioneering studies for Hey Brook to lead to a flood alleviation scheme in the area.

Timescale: ongoing (preferred option(s) expected by Autumn 2025)

Fluvial flood risk is identified to be the key risk in the Templeton Road area as a result of the Main River (Hey Brook) overtopping. The Environment Agency are currently considering actions for mitigating this risk as part of the Hindley Proposed Flood Risk Management Scheme. This includes investigating the potential for raised defences, flood storage areas, and improving the conveyance of the watercourse. This will also assess wider catchment interventions such as Natural Flood Management (NFM) techniques to reduce the flow downstream and PFR measures for individual properties where a residual risk remains. The proposed scheme is currently at the appraisal stage.

The Environment Agency should offer a direct Flood Warning Service for the Platt Bridge area.

Timescale: by Summer 2026

There is a Flood Alert covering the Platt Bridge area, but no Flood Warning is currently available. The Environment Agency should review existing local gauges or install a new gauge which would allow a Flood Warning to be offered for the area. This would help the community to take actions in advance of a flood event and improve community resilience.

Wigan Council (Highways and LLFA) should resolve the ongoing issues (including backing up and tree root intrusion) with the highway drain which discharges into Hey Brook at Platt Bridge.

Timescale: by end of 2025

During the flood event, the high water level in Hey Brook is reported to have submerged the outfall of the highway drain leading to floodwater backing up along the drain and surcharging upstream in Platt Bridge. Wigan Council also reported that due to the location of the highway drain there are ongoing issues with root intrusion. Therefore, it is recommended that Wigan Council review actions to alleviate the issues with the highway drain. Installing a flap valve on the outfall could be an action to reduce the risk of floodwater backing up along the drain however the residual risk of water in the network being unable to drain away should also be considered. Wigan Council are currently also undertaking discussions with local landowners around actions to divert the current highway drain, which would alleviate the issues with root intrusion, and to provide a better outfall level into Hey Brook to reduce issues with the highway drainage system backing up in response to high water levels.

United Utilities should review the resilience of key infrastructure that is situated within areas of flood risk.

Timescale: by Summer 2026

During the flood event the Templeton Road pumping station was submerged due to fluvial flooding from Hey Brook. It is acknowledged that on this occasion, the flooding did not impact the operation of the pumping station, and it remained operable until Electricity North West isolated the electricity supply to the area. United Utilities then activated their emergency procedures to restore power to the pumping station via an emergency generator. However, if a more significant flood event were to occur in future there is the potential for the pumping station or for additional infrastructure at flood risk to be compromised. Therefore, it is recommended that United Utilities review the resilience of their infrastructure at flood risk and assess whether there are any improvements that can be made.

8.2.2 Bickershaw Lane area

Wigan Council (Highways and LLFA) and United Utilities should investigate the installation of flap valves on the surface water outfalls into Brookside Brook Drain.

Timescale: by end of 2025

During the flood event, residents reported the high water level in Brookside Brook Drain submerged the outfall of the highway drain leading to floodwater backing up along the drain and surcharging through the highway gulleys along Keats Way. It is likely that water also backed up via the United Utilities surface water sewer and surcharged the manholes on Simpkin Street. Flap valves would reduce the risk of floodwater backing up along the drains however the residual risk of water in the network being unable to drain away should also be considered.

At the time of producing this Section 19 flood investigation report it was reported that Wigan Council and United Utilities were progressing with this recommendation.

Wigan Council (Highways and LLFA) should undertake a feasibility study to explore potential actions for alleviating flood risk in Keats Way East (Bickershaw Lane and Simpkin Street).

Timescale: by Summer 2026

The flood risk in Keats Way East (Bickershaw Lane and Simpkin Street) is reported to result from both overtopping of Brookside Brook Drain (an ordinary watercourse) and surcharging of the highway drains when the level in the Brook rises. Wigan Council should undertake a feasibility study which explores actions to alleviate flood risk in this area, including raised defences and flood risk management infrastructure, and PFR measures for individual properties where a residual risk remains. Due to the reported issues with groundwater in this area, PFR is unlikely to mitigate flooding from all sources of flood risk.

United Utilities should improve the capacity of the sewer network following investigations to understand the capacity when the river level in Hey Brook is high, although not out of bank.

Timescale: ongoing

United Utilities have commissioned a modelling study to investigate the impact on their drainage network with a corresponding high river level in Hey Brook. This will lead to initial optioneering to understand where additional capacity may be required within this system.

Wigan Council (Highways and LLFA), United Utilities, and the Environment Agency should work in partnership to undertake a feasibility study to explore potential actions for alleviating flood risk in Keats Way West (Bickershaw Lane).

Timescale: by Summer 2026

Residents in this area reported that the flooding was a result of both surface water drainage surcharging and issues with the combined sewerage system backing up. United Utilities reported no issues with the pumping station. However, the combined sewerage system was overwhelmed due to the high water level in the watercourse and additional water entering the system via surface water drainage. It is recommended that Wigan Council, United Utilities, and the Environment Agency use the Partnership Working Group to further assess the drainage connectivity in this area and undertake a feasibility study to explore actions to mitigate flood risk. This could include surface water separation, flap valves on outfalls, and PFR measures for individual properties where a residual risk remains.

8.2.3 Community resilience

The Bickershaw Lane Flood Action Group, supported by the National Flood Forum, Wigan Council (Resilience Team and the LLFA), the Environment Agency, and United Utilities, should create a community Flood Action Plan to formalise any existing emergency response plans.

Timescale: by end of 2025

Residents in the Bickershaw Lane area are already active in taking steps to improve their preparedness and resilience to flooding, such as installing a gauging stick and camera on Brookside Brook Drain. Formalising a Flood Action Plan will allow all residents to take ownership of their flood risk, increase awareness, and improve community preparedness.

The Flood Action Plan should include information for use by the Emergency Services with details of the most vulnerable residents in the area.

8.2.4 Development control

Due to proposed development in the area and flood risk identified, Wigan Council should require that any new proposed development is designed with mitigation measures in place to provide flood risk betterment in the wider area considering multiple benefits.

Timescale: ongoing

During stakeholder consultation, concerns were highlighted around the amount of proposed development in the study area. New development can have a significant impact on existing flooding and drainage issues. Future development should be designed not only to be safe from flooding throughout its lifetime and not increase the flood risk in the wider area but should be used as an opportunity to provide flood risk betterment in the wider area, where appropriate.

A Appendix: Hydrological summary of the event

A.1 Hydrometric data

Figure A-1 shows the locations of hydrometric data from river level and rain gauges in the vicinity of the study area. These include:

- five rain gauges within a 15km radius of the study area;
- one level gauge at First Avenue, 2.5km directly upstream of the affected locations on Borsdane Brook (the river catchment drains an area of 11km^2 to this point); and
- a flow gauge at Little Woolden Hall, 14.5km downstream on Glaze Brook. This location has a much larger drainage area of 160km^2 relative to the First Avenue gauge.

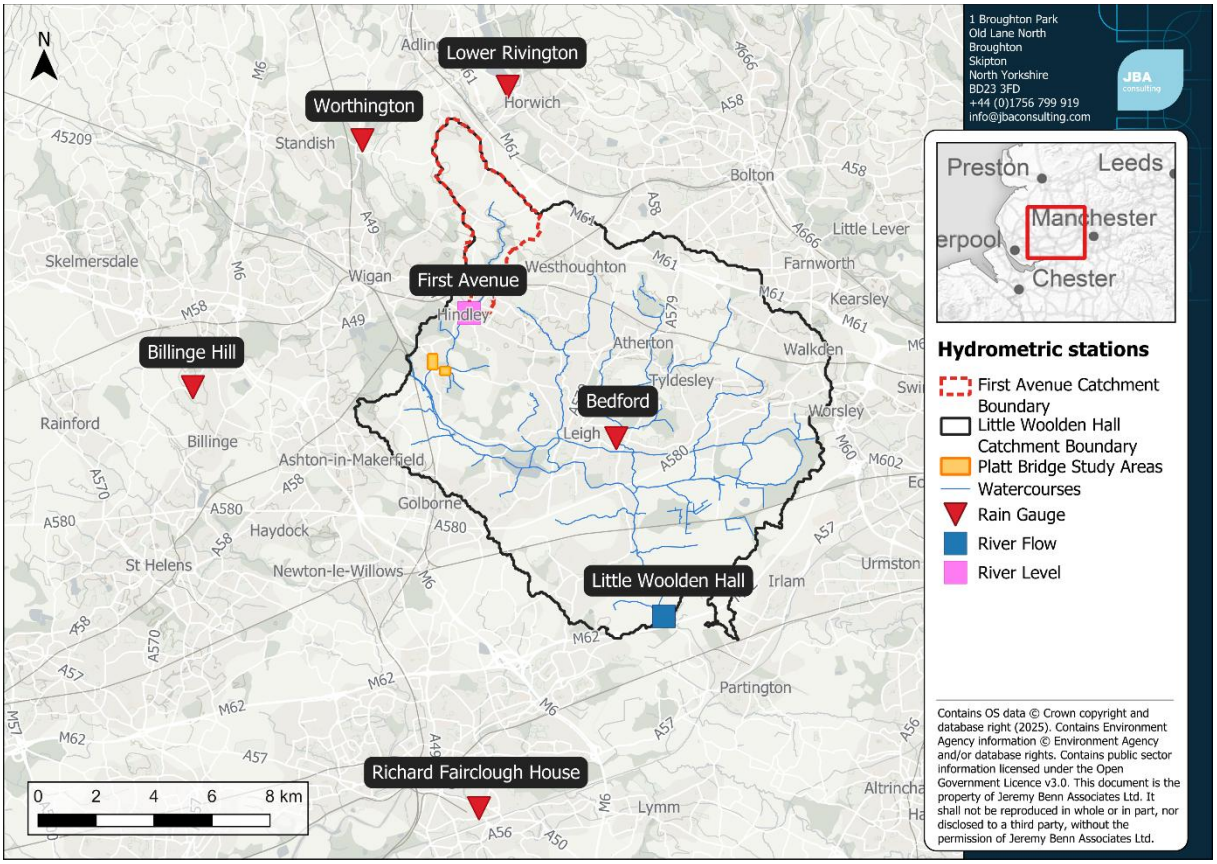


Figure A-1: Hydrometric stations around Platt Bridge.

Table A-1 summarises the available hydrometric data at each gauge.

Table A-1: Hydrometric data summary.

Gauge name	Type	Period of record	Further notes
Lower Rivington	Sub-daily raingauge	April 1995 to March 2025	Located on high ground to the north of the catchment (118mAOD). Likely generally receives greater rainfall relative to the study area (circa 30mAOD).
Worthington	Sub-daily raingauge	June 1998 to March 2025	None
Billinge Hill	Sub-daily raingauge	July 1995 to March 2025	Located on high ground to the west of the catchment (165mAOD). Likely generally receives greater rainfall relative to the study area (circa 30mAOD).
Bedford	Sub-daily raingauge	November 1990 to March 2025	None
Richard Fairclough House	Sub-daily raingauge	March 1996 to March 2025	13km south of the study area, located in Warrington.
First Avenue	Level-only	May 2012 to March 2025	Just north of Hindley. Approximate rating curve available from a recent JBA modelling study. Low confidence in the extrapolation of this rating to large flood peaks.
Little Woolden Hall	Ultrasonic flow	October 1996 to March 2025	Good confidence in flood-range flow data, flagged as "OK for Pooling" in the National River Flow Archive.

A.2 Conditions leading up to the event

A high-level review from the 'UK Water Resources Portal' (UK Centre for Ecology and Hydrology) in Figure A-2 indicates the overall average monthly rainfall and resulting river flows in December 2024 were 'Notably High' in the month leading to the 1 January 2025 flood event, relative to conditions in the long-term record for that time of year.

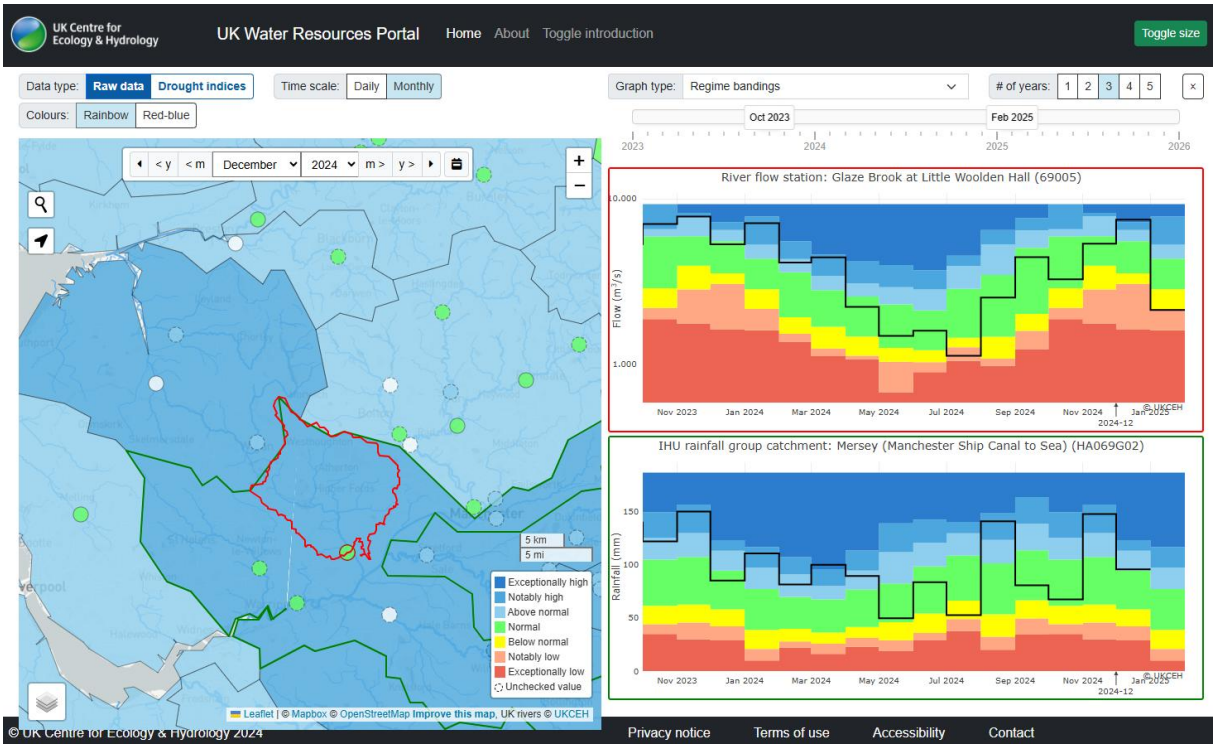


Figure A-2: Screenshot from the UK Centre for Ecology and Hydrology Water Resources Portal (© UK Centre for Ecology and Hydrology 2025).

The local rain gauge data shows a more nuanced picture. The plots in Figure A-3 show daily rainfall (09:00 to 09:00 the following day) over December 2024. The final bar highlighted in red includes the rainfall driving the observed flooding on 1 January 2025. These data indicate the rainfall between 31 December 2024 to 1 January 2025 makes up a dominant fraction (roughly half) of the December 2024 monthly rainfall sum.

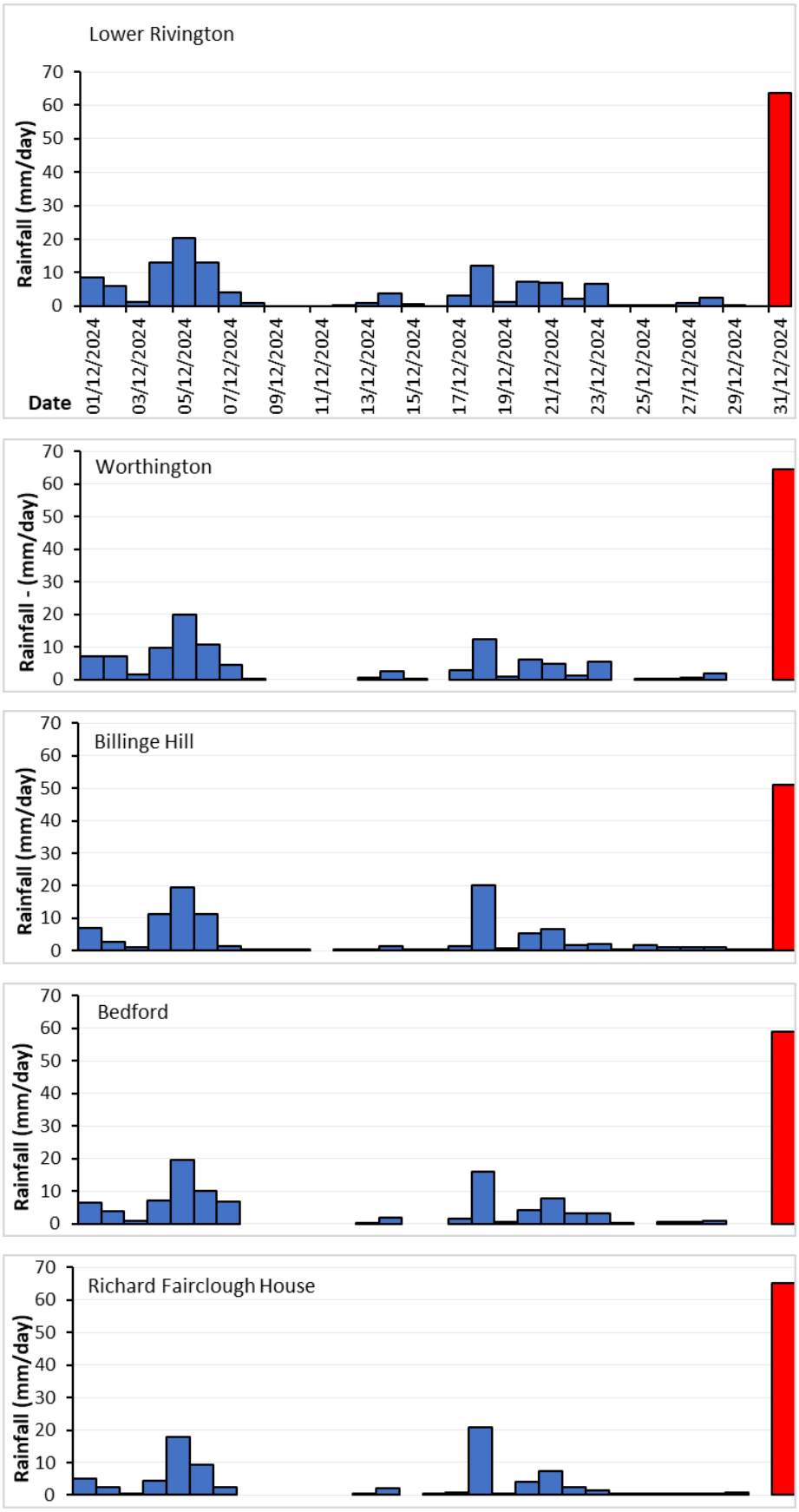


Figure A-3: Antecedent daily rainfall over December 2024 compared with the recent flood event.

Table A-2: Antecedent period rainfall review.

Rain gauge	5-day summed rain prior to event (09:00 26 Dec to 09:00 31 Dec)	Daily rainfall (09:00 31 Dec to 09:00 1 Jan)	December 2024 rain as a % of long term monthly average
Lower Rivington	3.6mm	63.6mm	133% including event 86% excluding event
Worthington	2.4mm	64.4mm	135% including event 82% excluding event
Billinge Hill	3.7mm	51.2mm	141% including event 93% excluding event
Bedford	2.0mm	58.8mm	155% including event 95% excluding event
Richard Fairclough House	1.5mm	65.2mm	153% including event 86% excluding event

Table A-2 shows that the climatic antecedent conditions in the weeks and days leading up to the flood event were not particularly unusual. Omitting the flood event itself, the remaining summed December 2024 rainfall is not particularly notable at any nearby rain gauge, falling slightly below the long-term December monthly average. The December 2024 monthly rainfall was exceeded in 2023, 2015, 2012, 2011, and 1999 over the prior quarter-century, if including the 31 December to 1 January period in calculations.

A.3 Rainfall and fluvial response

15-minute resolution rainfall for 31 December 2024 to 2 January 2025 generally shows a double-peak rainstorm profile. The first high-intensity peak occurred around 18:00 to 21:00 on 31 December. 10mm - 20mm fell in this initial period. Rainfall persisted through the night to the morning, with a second high-intensity peak around 02:00 to 04:00 on 1 January. This was a heavier and more prolonged rainstorm period, with 30mm - 40mm falling.

Residents on Bickershaw Lane reported that water first started coming up via the external drains between 02:00 and 03:00 on 1 January 2025.

The fluvial response to this rainstorm varies when comparing recorded river levels at First Avenue and Little Woolden Hall. At the First Avenue gauge, Figure A-4 shows:

- river levels rising around 19:00, reaching an initial peak (and remaining steady for the next five hours) at 22:00;
- the small drainage area here gives rise to a near instantaneous response to the second peak of rainfall, peaking around 04:30. The first rainstorm pulse exacerbated this peak, likely reducing soil moisture storage before the arrival of the second rainstorm peak; and

- a return to high baseflow conditions around 18:00 on 01 January, with river levels falling off gradually thereafter.

The Little Woolden Hall gauge on the River Glaze is far downstream of Platt Bridge. The fluvial response there is affected by lakes and storage areas between Platt Bridge and the gauging site. This gives a slower and more prolonged flood response here, relative to the First Avenue gauge, giving rise to a single fluvial flood peak around 11:00 on 1 January 2025.

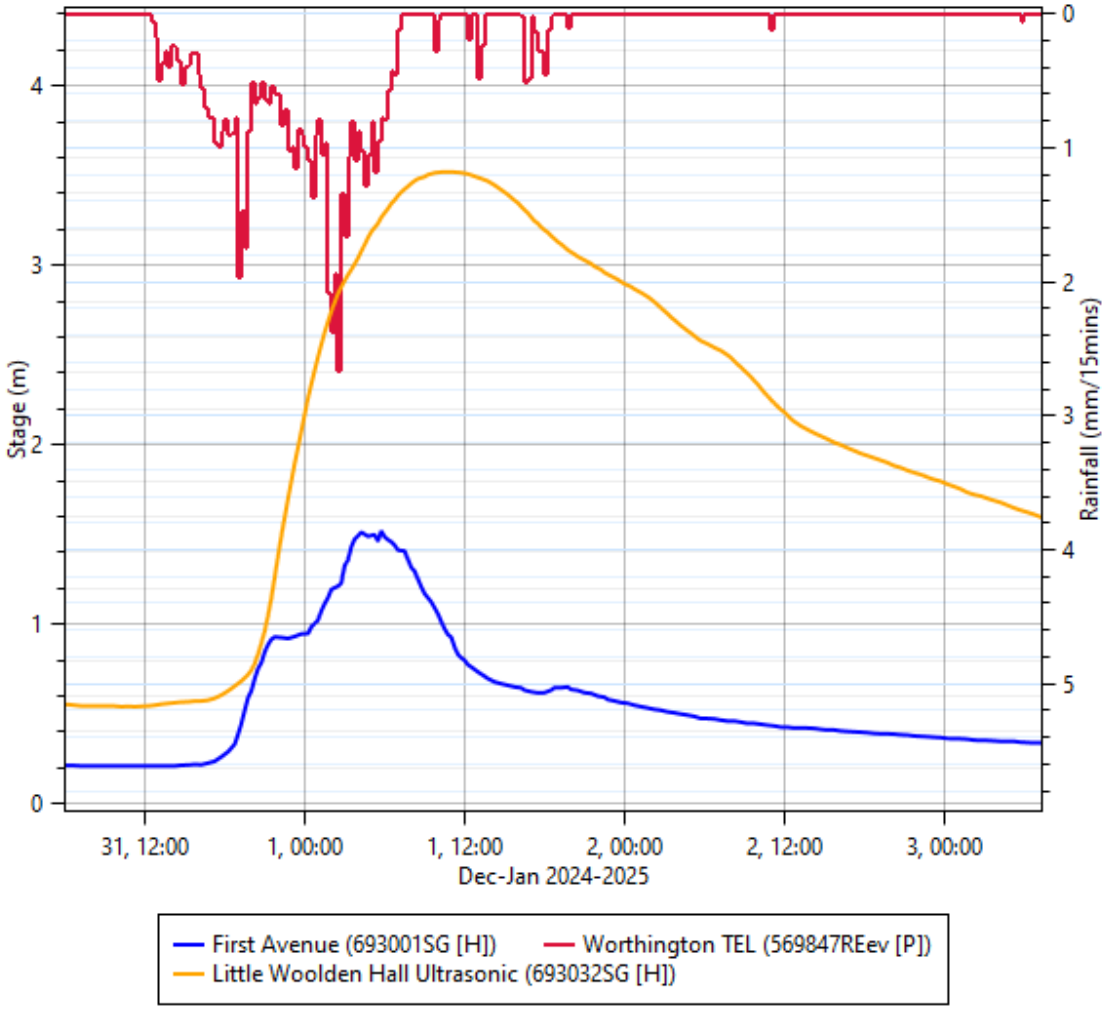


Figure A-4: Fluvial response to the 1 January flood event at nearby river level gauges.

Whilst the exact time that Hey Brook overtopped is not known, residents along Templeton Road reported that the flooding started at around 07:00 on 1 January 2025.

Templeton Road pumping station was submerged by floodwater. United Utilities reported that the pumping station remained operable until Electricity North West isolated the supply to the whole area at 10:30 on 1 January 2025 due to safety concerns. This triggered United Utilities' Emergency Procedure, and they delivered an emergency generator by boat on 2 January 2025 at 08:00. United Utilities then accessed the pumping station at 13:00 on 2 January 2025 and restored the power.

Residents on Simpkin Street reported the water remaining for approximately 6 hours whilst residents on Bickershaw Lane reported the water did not subside enough for them to leave their homes until 5pm on 1 January 2025.

A.4 Rainfall event probability estimation

The industry-standard Flood Estimation Handbook (FEH) Depth-Duration-Frequency (DDF) 2022 model (FEH22 model) estimates the rarity of observed rainstorms, having a unique DDF model for any given spatial location. The FEH22 model was applied in a rolling-window manner to the observed rainstorm data, for various durations between 1 hour to 30 hours. The worst-case result was obtained for the 16-hour window across all gauges as shown in Table A-3.

Table A-3: Rainfall event rarity analysis for the 1 January 2025 event.

Rain gauge	Maximum rolling-window summed rainfall (mm)	FEH22 model event annual probability (%)
Lower Rivington	60.0mm	3.4%
Worthington	61.2mm	2.1%
Billinge Hill	48.3mm	9.2%
Bedford	57.6mm	2.8%
Richard Fairclough House	64.5mm	1.5%

The result is less extreme at Billinge Hill due to the lower intensity / more prolonged nature of the recorded rainfall there, relative to the other nearby gauges. The remaining gauges give a consistent result however, indicating a Rainfall annual probability of around 1.5% - 3.5% for the 1 January event.

A.5 Fluvial event probability estimation

There are sufficient historic peak level / flow records at the First Avenue and Little Woolden Hall gauges to undertake a fluvial event analysis. This section applies industry standard FEH methods to estimate a fluvial annual probability for the 1 January 2025 event.

A.5.1 First Avenue POT level records

A peak-over-threshold (POT) analysis provides an initial check for the 1 January 2025 event severity, relative to historic conditions. Data records begin here in June 2012, giving 13 years of flood peak data. This is a useful record to hold, with the record length of 13 years being the main limiting factor on the following interpretations.

The 1 January 2025 event is tied for the largest river level on record at First Avenue, matching to three decimal places to the 26 December 2015 event, with a peak stage of 1.524m above local gauge datum (ALD) (red bar in Figure A-5). For context, the third- to fifth-largest POT events come relatively close to this, ranging from 1.366mALD to 1.498mALD (events in 2020, 2021 and 2024).

A simplified ranking method and application of the Gringorten formula gives an annual probability between 4% to 12% for the 1 January 2025 event from this POT record, depending on if it is assigned a rank 1 or 2 in this simplified calculation.

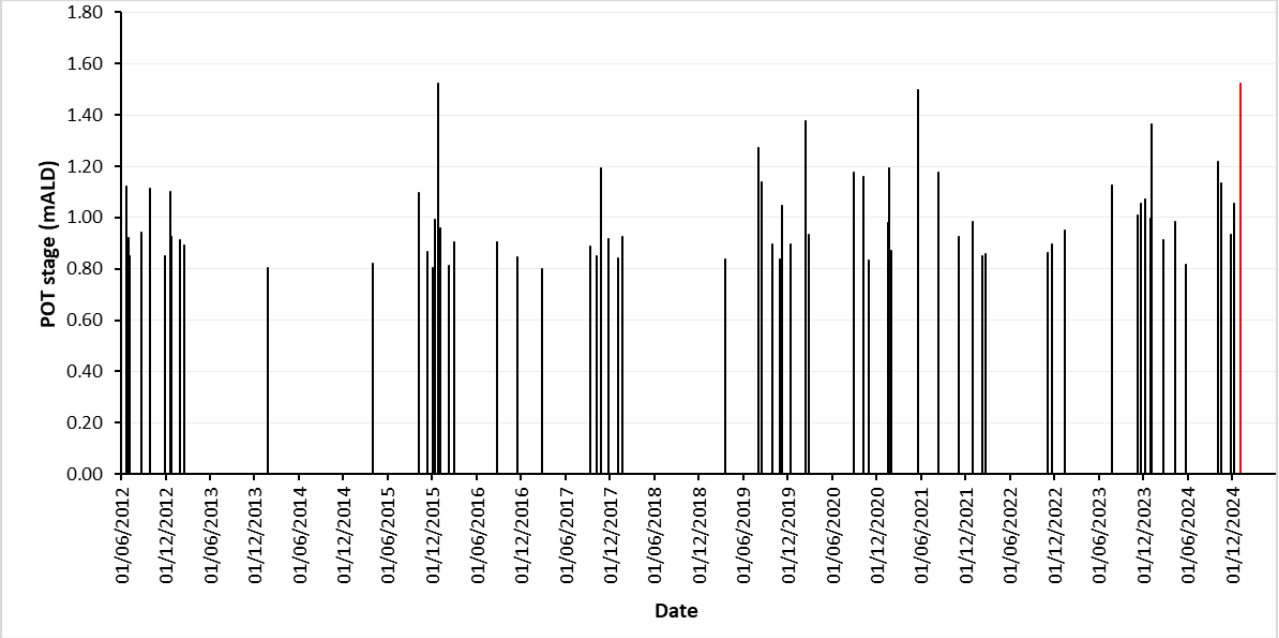


Figure A-5: POT level record at the First Avenue gauge.

A.5.2 Annual Maximum fluvial analysis

Converting level data to river flows gives a more robust method for assessing flood event rarities, allowing for comparisons and transfers of data between neighbouring hydrometric sites. The Little Woolden Hall gauge is a well-established flow gauge, with good quality Annual Maximum (AMAX) peak flow data, lending itself well to this type of analysis. The First Avenue gauge is less suited to this, with lower confidence in the level-to-flow conversion (a site "rating curve") at this site. Recent work by JBA in 2023 for the Environment Agency attempted to fit a hydraulically modelled rating curve at First Avenue. This process was somewhat successful; there is moderate confidence in this modelled rating up to the 50% annual probability peak (a stage of around 1.35mALD at this gauge). Large flood flows are known to bypass the First Avenue gauge however, meaning that simple extrapolation of this modelled rating curve for events such as the 1 January 2025 peak will likely under-estimate the event peak flow, and hence also the corresponding event annual probability from a standard FEH analysis.

FEH calculations at First Avenue give the following results:

- The 50% annual probability peak flow (QMED) is estimated at 6.4m^3/s. This has been adjusted for climatic variation owing to the short 13-year record.
- The estimated peak flow for the 1 January 2025 event is 12.8m^3/s. As noted above, this is likely an under-estimate due to unmeasured bypassing in extreme

flood conditions. As per the POT review in the previous section, this is tied for the largest event in the available 13-year record.

- The above QMED value combined with a standard FEH "Pooled" analysis (excluding the local AMAX due to insufficient data quality at First Avenue) gives an annual probability of 4.6% for the 1 January 2025 event. Again, this is likely an under-estimate.

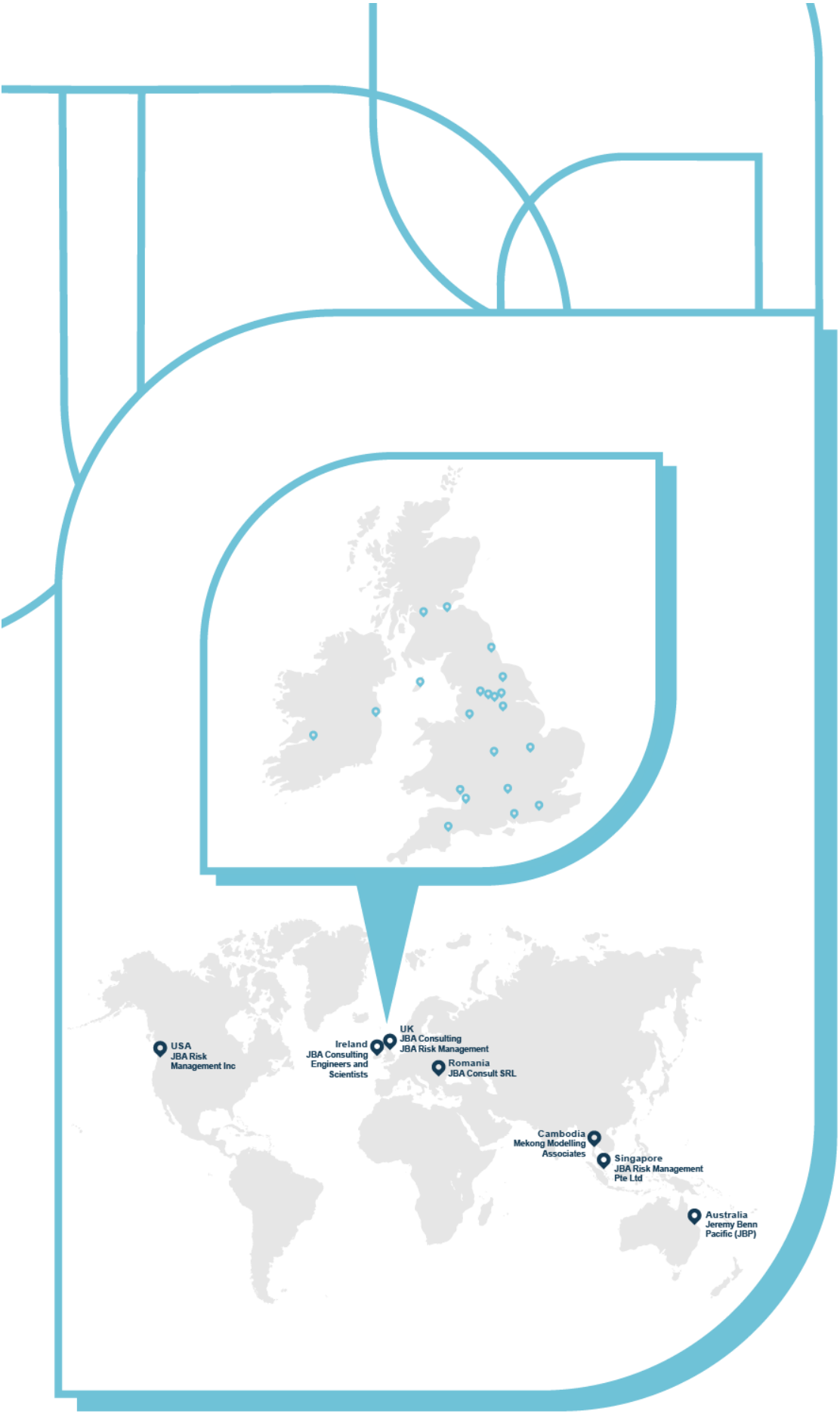
A similar process applied to the Little Woolden Hall gauge downstream of Platt Bridge gives:

- The 50% annual probability peak flow (QMED) is estimated at 32.7m^3/s, taken directly from the AMAX record.
- The estimated peak flow for the 1 January 2025 event is 52.3m^3/s. Note this is an unchecked value, extracted directly from the Environment Agency Hydrology Data Explorer. This is the second-highest value on records here, only just exceeded by a recent event in January 2021.
- The above QMED value combined with a standard FEH 'Enhanced Single Site' analysis (including the local good quality AMAX in the calculation) gives an annual probability of 3.9% for the 1 January 2025 event.

A.6 Summary

Antecedent conditions in the weeks and days leading up to the 1 January 2025 event were not particularly unusual. This points to the rainstorm event itself being the main driver of the observed flooding in Platt Bridge. The double-peak nature of the rainstorm and its long duration were the combined main drivers of high fluvial flows in Hey Brook. The first rainfall peak (around 10 mm - 20mm) likely reduced soil storage in the catchment. The immediate occurrence of the second larger peak (30mm - 40mm) was exacerbated by this initial peak.

Applying standard FEH methods gives good agreement on the event annual probability, falling around a 1.5% - 3.5% annual probability for the rainfall itself. The resulting response for river flows is estimated to have been around a 4% annual probability event but may have been a larger event in reality due to a lack of nearby high-quality flow data for small river catchments.



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