



**Flood Investigation Report**  
**Beresford Street/Gorman Street, Wigan**  
**22 June 2012**

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**Revision Schedule**

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**Flood Investigation Report**

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# Contents

<b>Executive Summary</b>	4
<b>1 Introduction</b>	5
1.1 Flood Event	6
<b>2 The Drainage System</b>	6
<b>3 Flood History</b>	8
3.1 Possible Cause	8
3.2 Actions Taken	8
<b>4 Rights and Responsibilities</b>	9
4.1 Lead Local Flood Authority	9
4.2 Environment Agency	10
4.3 Riparian Landowners	11
4.4 Residents	11
<b>5 Recommendations</b>	12
<b>6 Conclusions</b>	14
<b>Useful Contacts &amp; Links</b>	15
<b>Appendix</b>	16

## List of Tables

Table 1	Recommendations	14
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## List of Figures

Figure 1	Miry Lane Turning Circle	6
Figure 2	Existing Drainage & Extent of flooding at Beresford Street & Gorman Street	7
Figure 3	CCTV Screen shot of Blockage	8
Figure 4	Debris removed from Culvert	9

## **Executive Summary**

This Flood Investigation Report has been completed by Wigan Council under our duties as the Lead Local Flood Authority (LLFA). Section 19 of the Flood and Water Management Act 2010 (FWMA) states that on becoming aware of a flood in our area, when appropriate, we must investigate the relevant flood risk management authorities involved and find out which flood risk management functions have been, or will be taken, if any.

In September 2011 local residents from the Beresford Street and Gorman Street area of Wigan reported that surface was surcharging from the highway drain in Beresford Street.

It was deemed necessary by Wigan Council to complete an investigation of the above flood incident. This report provides a summary of the actions being carried out by each of the authorities involved; activities include general inspection, man entry surveys of the culverted watercourse, as well as engaging with landowners and the local Community.

Surface water flooding was reported by local residents in September 2011 which in periods on heavy rainfall required regular attendance by council staff to assist in the deployment of sandbags and the removal of surface water that was surcharging from the highway drain in Beresford Street. However from early 2012 the residents reported the risk of internal flooding every time it rained and requested assistance from the Council, this continued until mid July 2012 when the blockage in the culvert was removed, but in particular on 26- 29<sup>th</sup> April 2012 and 22<sup>nd</sup> June 2012, the Council was required to deploy a range of resources to help protect residents and their properties in Beresford Street and Gorman Street, Wigan due to flooding problems.

The flooding has been attributed to be blockage in the Barley Brook Culvert, which runs under the Pagefield Industrial estate (owned by the Canal and River Trust [CRT]), which caused water to back up in the 2 streets and on the above dates actually entered a number of properties, creating a need for the properties to be evacuated, and causing damage to furniture and fittings in the homes affected.

## 1. Introduction

Wigan Council as the Lead Local Flood Authority (LLFA) has a responsibility under Section 19 of the Flood and Water Management Act 2010 to investigate and report flood events in the Wigan Borough.

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 and relevant risk management authorities.

**A formal investigation will be undertaken when one or more of the following occurs:**

- The source or responsibility of a flood incident is unknown.
- Flooding has affected critical infrastructure.
- Internal flooding of one property has occurred on more than one occasion in the last five years.
- Internal flooding of five properties in close proximity has occurred during a single flood event.

This report provides a concise review of the rights and responsibilities of all risk management authorities involved, and an outline of their past or proposed actions, if any. It also makes recommendations for a possible way forward.

## 1.1 Flood Event

An investigation into the recent and previous flood incidents at this location was executed due to more than one property flooding internally on numerous occasions.

Flooding has occurred at this location for a number of years, most recently on the 22 June 2012 with 14 residential properties flooding internally and water 300mm deep in turning circle at Miry Lane Industrial Estate (as shown in Figure1).

Sand bags and pumps were deployed to site to limit damage to properties.



Figure 1 - Miry Lane Turning Circle

## 2. The Drainage System

The primary source of flood risk is caused by Barley Brook which is a main river and as such the Environment Agency has a responsibility to monitor its status against the objectives set. The main cause of flooding on the 22 June 2012 has been attributed to a build up of debris in a section of the culvert within the curtilage of the Pagefield Industrial Estate before it passes under the Leeds-Liverpool Canal via a siphon. The blockage obstructed a significant section of the culvert. (The culvert is shown on Figure 2 as a dashed line) resulting in surcharging of the culvert and the highway drainage system that discharges into the culverted watercourse.

The terraced property at number 14 Gorman Street has a manhole on the culverted watercourse section of Barley Brook adjacent to their rear garden. Neither the Council nor the householder has any record of any surcharging from this manhole.

The low lying ground around Beresford Street and Gorman Street makes this area subject to flooding from heavy rainfall with surface water overloading the highway drainage system. There is a history of surface water flooding to the lower end of Beresford Street, with water accumulating under the railway bridge and backing up towards Beresford Street and subsequently Gorman Street.

The highway drainage from Gorman Street and part of Meadow Street flows into the combined sewer which is the responsibility of United Utilities. During a flood event in 2008 the combined sewer surcharged, resulting in raw sewage mixing with the floodwater affecting properties on Gorman Street.

The highway drain on Beresford Street connects directly to Barley Brook Culverted Watercourse and at times of hydraulic incapacity cannot discharge into the culvert and surcharges from the manhole opposite number 11 Beresford Street.

Figure 2 below shows the approximate location and extent of flooding and the location of the public sewers, highway drainage and Barley Brook Culverted Watercourse.

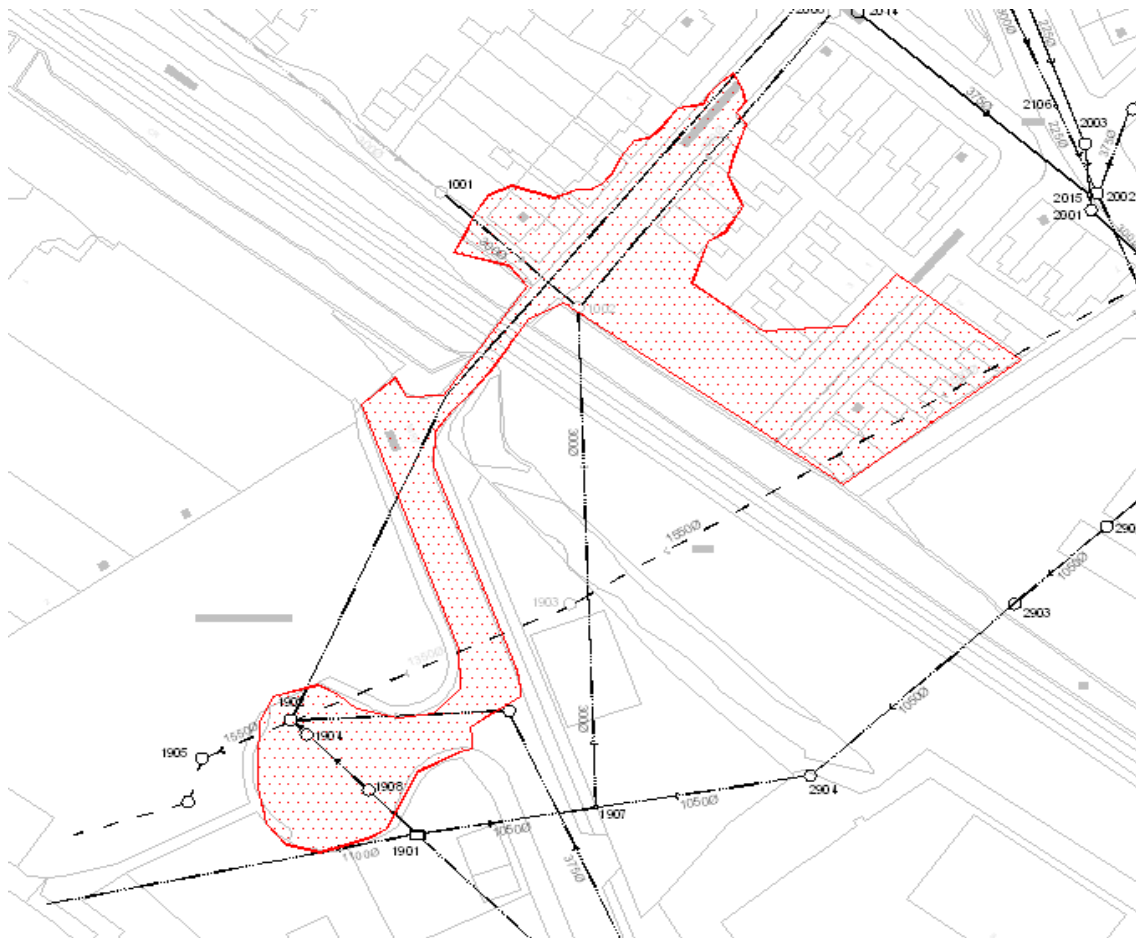


Figure 2 - Existing Drainage and Extent of flooding at Beresford Street and Gorman Street

### 3. Flood History

Flooding at this location dates back to 2008 when properties suffered internal flooding as a result of a tree trunk (measuring 1700mm long and 650mm wide) blocking the timber syphon under the Leeds & Liverpool Canal. This was removed by British Waterways Contractors using high pressure water cutting equipment; since its removal there have been no reported flood events until September 2011 with a major flood incident occurring on the 22 June 2012. Pictures can be found in Appendix A.

#### 3.1 Possible Causes

The flood event on the 22 June 2012 has been attributed to a build up of debris in a section of the culvert within the curtilage of the Pagefield Industrial Estate before it passes under the Leeds-Liverpool Canal via a siphon. The blockage obstructed a significant section of the culvert resulting in surcharging of the culvert and the highway drainage system that discharges into the culverted watercourse.

#### 3.2 Actions Taken

As CCTV survey the culvert and syphon carried out on behalf of the Environment Agency indicated that although the siphon was clear of obstruction and working efficiently a significant blockage upstream of the siphon was identified. See Figure 3



Figure 3 – CCTV Screen shot of Blockage



As the culvert is within land owned by the Canal & River Trust and as riparian owners were asked by the Environment Agency on how they proposed to remove the blockage. As a result of additional negotiations the Canal and River Trust commissioned Aquajet (GB) Ltd to ascertain the nature and extent of and remove the blockage from the culvert. The debris causing the blockage consisted of a mixture of silt, litter, timber, brickwork, clothing etc. as can be seen in Figure 4.



Figure 4 – Debris removed from Culvert

In total there was in excess of 32 tonnes of silt removed from the culvert and 4 skips of debris.

## 4. Rights and Responsibilities

### 4.1 Lead Local Flood Authority

As stated within the introduction, Wigan Council as the LLFA has a responsibility to investigate flood incidents under Section 19 of the Flood and Water Management Act. The Act gave the Council strategic roles in overseeing the management of local flood risk i.e. flood risk from surface water runoff, groundwater and ordinary watercourses such as streams and ditches. It gives the Council the following new responsibilities:

- To develop, maintain, apply and monitor a record about each structure or feature, including the ownership and state of repair of assets which have a significant effect on flooding.
- To designate structures and features that affect flooding.
- To keep record of flooding hotspots across the Borough.

As the LLFA, Wigan Council will be looking for support from other authorities to ensure flood incidents are reported, and any assets which have a significant effect on flood risk are recorded on the asset register.

While Wigan Council can suggest possible causes of flooding and make recommendations to ensure flood risk is mitigated as far as possible, the Flood and Water Management Act does not provide Wigan Council with the mandate or funding to tackle all identified causes of flooding.

Wigan Council also have powers under Section 25 of the Land Drainage Act 1991 to serve notice on any persons impeding the flow of a watercourse and causing an increase in flood risk.

Wigan Council worked in conjunction with the Environment Agency in order to ascertain the location and nature of the cause of the flood event, who was responsible as riparian owner, and negotiate what if any action was to be taken.

#### 4.2 Environment Agency

The Environment Agency (EA) has permissive powers to carry out maintenance work on main rivers under Section 165 of the Water Resources Act.

The EA will also encourage third party asset owners to maintain their property in appropriate condition and take enforcement action where it is appropriate. They may consider undertaking maintenance or repair of third part assets only where it can be justified in order to safeguard the public interest and where other options are not appropriate.

The frequency of EA maintenance activities is primarily risk based, and activities comprise of vegetation management and clearance of blockages as and when is required.

At this location Barley Brook is classed as a main river therefore the Environment Agency commissioned a survey of the culvert in April 2012. The survey concluded that the structural integrity of the siphon was intact and that it was functioning correctly and efficiently. However the survey indicated that there was either a partial collapse or blockage on the culvert within the Pagefield Industrial Estate which is owned by the Canal and River Trust and as such they as riparian owners are responsible for its maintenance.

### 4.3 Riparian Landowners

Riparian landowners are those who own land adjoining a watercourse. Riparian landowners have certain rights and responsibilities, including the following:

- They must maintain the bed and banks of the watercourse, and also the trees and shrubs growing on the banks
- They must clear any debris, even if it did not originate from their land. This debris may be natural or man-made
- They must keep any structures that they own clear of debris. These structures include culverts, trash screens, weirs and mill gates
- If they do not carry out responsibilities, they could face legal action

Riparian landowners must understand and act upon these responsibilities and must be aware that any works in, over, under of within 8 metres of main rivers require formal consent from the EA under the Water Resources Act and associated byelaws. They must not carry out work without consent. If they do, the EA could reclaim from them the cost of removing, altering or pulling down works.

### 4.4 Residents

Wigan residents who are aware that they are at risk of flooding should take action to ensure that they and their properties are protected. Community resilience is important in providing information and support to each other if flooding is anticipated.

Actions taken can include laying sandbags and moving valuable items to higher ground, to more permanent measures such as installing floodgates, raising electrical sockets and fitting non-return valves on pipes.

Anyone affected by flooding should try to document as much information about the incident as possible. Wigan Council should be contacted and will make a record of the details provided.

If flooding occurs due to a main river residents are advised to report incidents to the EA, by calling 0800 807 060.

## 5. Recommendations

The method for prioritising works on watercourses varies for each risk management authority involved, and is dependent on factors such as resources available, operational area, and interpretation of flood risk. It is therefore important that all risk management authorities are open and honest with the community about what actions will or won't be taken, and why.

Wigan Council as the LLFA is in a position to facilitate sharing of information between risk management authorities, and the community, if required. We also recommend the actions summarised within Table 1 overleaf.

As put forward when discussing the cause of the flooding, the obstruction within the culvert should be removed by the Canal and River Trust as land owner.

Barley Brook watercourse is classified as Main River with maintenance inspections currently carried out by the Environment Agency Confined Spaces Team; with the exception of the canal siphon which needs to be dewatered to be inspected; this is under taken by the Rivers and Canal Trust.

The full length of the culverts should be inspected every 12 months for conveyance issues e.g. build-up of silt and debris with the section between Miry Lane and the canal siphon inspected every 3 months for the next 2 years to monitor this critical section.

The section of the Culvert owned by Canal & River Trust including the siphon needs its inspection regime to be increased to further limit the likelihood of a similar event.

This should provide a solution to the flooding problem as debris and silt was found to be the main cause.

Letters should be delivered to residents in the upstream area around the open sections near Spencer Road West to inform them of the problems, responsibilities etc.

A long term solution would be for the riparian owner, with consent from the EA, to install debris catchers and cleaning points within the culvert and a maintenance clearance schedule formulated, once in place the risk of debris build up within the culvert will be reduced, and hence the flood risk.

**Table 1** Recommendations

<b>Authority/ Stakeholder</b>	<b>Recommended Actions</b>
LLFA (Wigan Council)	<ul style="list-style-type: none"> <li>• Facilitate sharing of information between risk management authorities, and the community.</li> <li>• Keep a record of all flood incidents and significant flood risk assets within the area.</li> <li>• Ensure the owners of culverts and watercourses within the area are aware of their responsibilities.</li> <li>• Where the condition of a watercourse is such that ordinary flows are being impeded and the risk of flooding increased, The LLFA should ensure the owner of that watercourse remedies the condition.</li> <li>• Facilitate the serving notice under the Land Drainage Act 1991 on landowners where there is evidence flows are being impeded and increasing flood risk.</li> <li>• Determine any application to works affecting the watercourse and ensure such proposals are appropriate.</li> </ul>
Highways Authority	<ul style="list-style-type: none"> <li>• Asset Management should inspect and maintain the drainage system on a regular basis with maintenance activities continued based on agreed cyclic cleansing regime.</li> </ul>
Environment Agency	<ul style="list-style-type: none"> <li>• Continue to work in partnership with other authorities, providing information and comments when appropriate.</li> </ul>
Residents	<ul style="list-style-type: none"> <li>• Take measures to protect themselves and their property when flooding is imminent.</li> <li>• Document and photograph flood incidents where possible, report flooding to the EA, Wigan Council, Canal &amp; River Trust.</li> </ul>
Riparian Landowners	<ul style="list-style-type: none"> <li>• Must maintain any culvert, or the bed and banks of any adjacent watercourse.</li> <li>• Clear away any debris from the watercourse, culvert or grill, even if it did not originate from their land.</li> </ul>

## 6. Conclusions

Following the removal of the blockage to Barley Brook Culvert the culvert and siphon would appear to be functioning efficiently and with no flooding incidents being reported to the Council.

The Environment Agency have now completed a flood risk mapping study of Barley Brook and have concluded that there is no risk of flooding up to a 10% (1 in 10 year return period) flood event to the properties in Beresford Street and Gorman Street as long as the culvert and canal siphon remains clear. If a 75% blockage were to occur during such an event then flooding would occur. Further analysis carried out shows properties on both Beresford Street and Gorman Street would flood in a 5% (1 in 20 year return period) flood event even if the culvert and siphon remained clear.

A permanent solution to flooding may not be achievable due to the complex nature of this situation and funding restraints. In addition, any inspection and regular maintenance works carried out will not guarantee that the site would never flood again.

Property-level flood protection measures could be installed at the flooded properties not currently in receipt of PLP, if no other solution can be found.

All flood risk authorities must continue working together, sharing information on any actions taken.

Wigan Council may wish to highlight the potential for flood risk management solutions to be considered within the planning process, particularly as part of planning applications for larger developments in the area.

## **Useful Contacts and Links**

### **Wigan Council**

The Environment Services Helpline Tel: 01942 404364

E-mail: [eshelpline@wigan.gov.uk](mailto:eshelpline@wigan.gov.uk)

Out of office hours in an emergency, Central Watch – 01942 404040

### **Land Drainage in Wigan**

[www.wigan.gov.uk/Resident/Environmental-Problems/land-drainage.aspx](http://www.wigan.gov.uk/Resident/Environmental-Problems/land-drainage.aspx)

### **Environment Agency**

General Enquiries 03708 506 506 (Mon-Fri, 8am - 6pm)

Incident Hotline 0800 80 70 60 (24hrs)

EA Floodline 0845 988 1188 (24hrs)

e-mail: [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)

### **United Utilities**

Tel 0845 746 2200 (24Hrs)

<http://www.unitedutilities.com/default.aspx>

### **Highways Act 1980:**

<http://www.legislation.gov.uk/ukpga/1980/66/contents>

### **Water Resources Act 1991:**

<http://www.legislation.gov.uk/ukpga/1991/57/contents>

### **Land Drainage Act 1991:**

<http://www.legislation.gov.uk/ukpga/1991/59/contents>

### **EA - 'Living on the Edge' a guide to the rights and responsibilities of riverside occupation:**

<http://www.environment-agency.gov.uk/homeandleisure/floods/31626.aspx>

### **EA - River and Coastal Maintenance Programmes:**

<http://www.environment-agency.gov.uk/homeandleisure/floods/109548.aspx>

### **EA - Prepare your Property for Flooding:**

How to reduce flood damage

Flood protection products and services

<http://www.environment-agency.gov.uk/homeandleisure/floods/31644.aspx>

### **The National Flood Forum**

[www.floodforum.org.uk](http://www.floodforum.org.uk)

Tel: 01299 403 055

**Appendix A**



**Beresford Street**



**Beresford Street**





**Gorman Street**



**Gorman Street**