



# **Flood Investigation Report Havenwood Road, Whitley**

**November 2023**

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## **Revision Schedule**

**Wigan Council**

**Flood Investigation Report**

**Revisions**

<b>Rev</b>	<b>Date</b>	<b>Details</b>	<b>Prepared</b>	<b>Reviewed</b>	<b>Approved</b>

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## **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 that has affected 5 or more properties internally, 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.

Following substantial upland rainfall, Havenwood Road experienced flooding on the 6<sup>th</sup> November 2023. The residents of Havenwood Road and May Tree Drive experienced varying degrees of flooding. There were also issues related with the United Utilities network and pumping station located in May Tree Drive.

The LLFA are aware of the issues in this location and have been working with the relevant risk management authorities to investigate and resolve any issues.

This report provides a summary of the actions being carried out by each of the authorities involved.

## 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:**

- There is a risk to life
- Weight of public, media, political and planning interest
- Impact on critical services
- Internal residential property flooding of more than 5 properties
- Economic disruption
- Impact on critical infrastructure and installations
- Frequency of flooding.

## 1.1 Flood Event

On Monday 6<sup>th</sup> November properties on Havenwood Road and May Tree Drive experienced flooding issues, following severe and incessant rainfall overnight causing the brook level to rise in the nearby watercourse, Barley Brook. The water level within the brook was observed during the day and seemed to peak at approximately 12am on the 7<sup>th</sup> November. The flooding of the surrounding woodland area hit at approximately 9am on the 6<sup>th</sup> and the flooding on Havenwood Road and May Tree Drive began to appear at approximately 5pm with response crews attending Havenwood Road and May Tree Drive until 3am to clear the water.

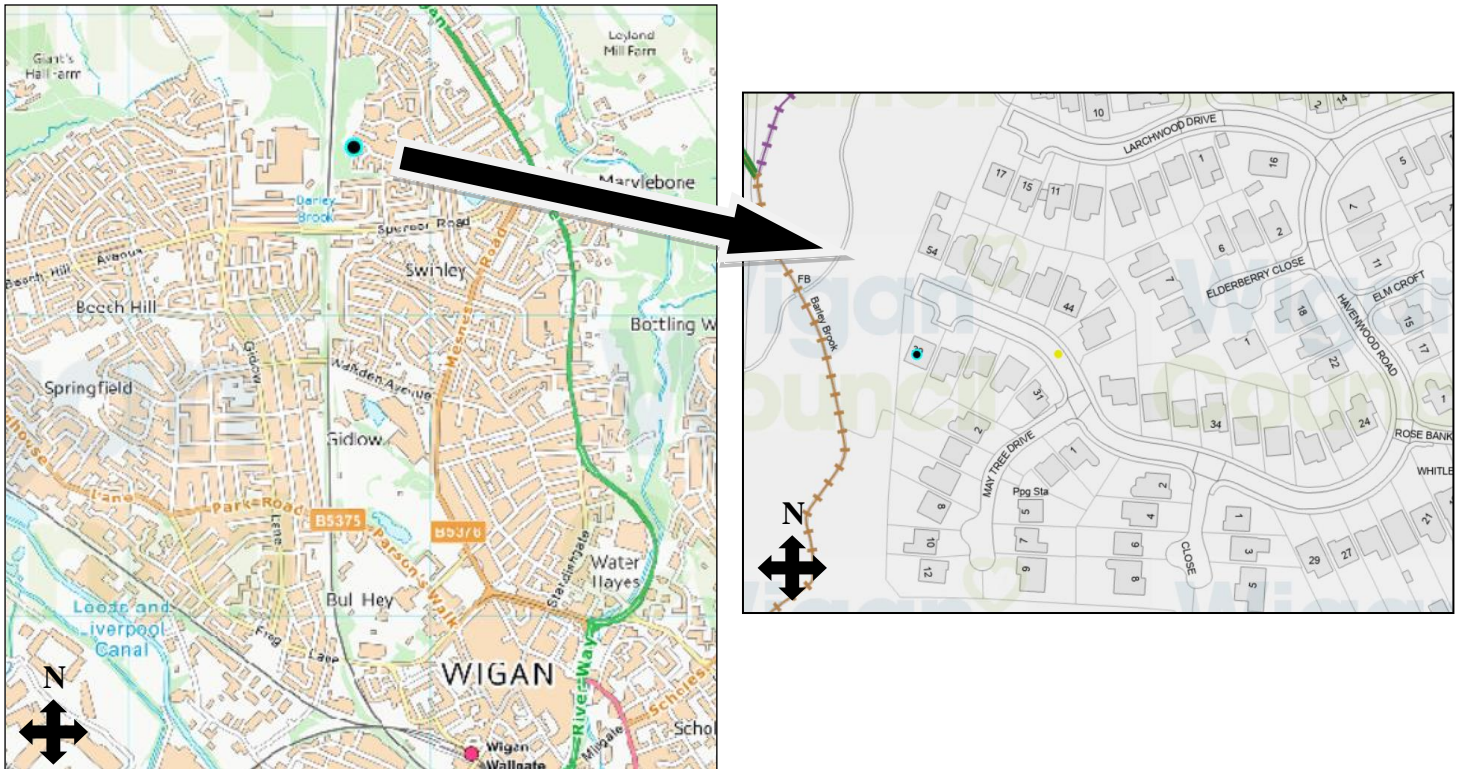


Figure 1. Location plan

On the 6<sup>th</sup> of November 2023 a flood alert was issued for the upper Douglas catchment area which indicated that fluvial flooding could impact low lying areas and footpaths adjacent to Barley Brook. This alert was issued in response to persistent heavy rainfall experienced in the northern region of the catchment area. At approximately 06:00 the water level exceeded the height of the banks of Barley Brook resulting in fluvial flooding to the low-lying woodland surrounding the watercourse. A resident on Westfield Grove reported that the woodland area upstream of the Network Rail culvert had become heavily flooded and that the footpath adjacent to the railway had become inaccessible. Following this report a flood risk officer attended site to inspect the watercourse and the blockage was reported to Network Rail. Rail services were not affected as the water level did not reach the track. The extent of the blockage was unknown at this time due to the height of the water.

The surface water from Havenwood Road and May Tree Drive was unable to drain away as the sewer outfall into Barley Brook had become submerged. United Utilities sewer network quickly reached its capacity due to the persistent rainfall and was unable to accept any surface water from the properties or highway gullies. Ponding

on the highway eventually exceeded the height of the kerb and spread towards the properties following hours of sustained heavy rainfall. United Utilities officers that had attended site reported that the foul sewer system had become inundated with surface water causing sewage to back up onto Havenwood Road. Surface water had entered the foul sewers through the property's private drainage system resulting in the pumping station becoming overwhelmed by the additional water. United Utilities officers were on site to ensure that the pumping station remained operational and to assist with the surface water flooding. The attending UU officers also remarked that the nearby foul pumping station was running to capacity.

Network Rail officers were on site to investigate the report by the flood risk officer and residents that the culverted section of Barley Brook beneath the railway had become blocked by debris. The flooding on Havenwood Road and May Tree Drive began to dissipate at approximately 03:00 on the 7<sup>th</sup> of November.

Figure 2 here shows the location of flooding.

The estate is mapped as in an area of high risk from river and surface water flooding on the Environment Agency mapping service, as shown below.



*Figure 2. Environment Agency Surface Water Flooding Map*

The photos in appendix 1 show the full extent of the flooding.



## 2. The Drainage System

Havenwood Road is predominately served by a separate system with both a foul and a surface water sewer system as shown in Figure 2 below. This system is owned and maintained by United Utilities.



Figure 3. Sewer Plan

The blue line indicates the surface water system with the brown indicating the foul system.

The surface water network that serves Havenwood Road and May Tree Drive discharges directly into the main river known as Barley Brook. The Brook, although classified as a main river, is the responsibility of the riparian owner, which in this case is Network Rail and Wigan Council.

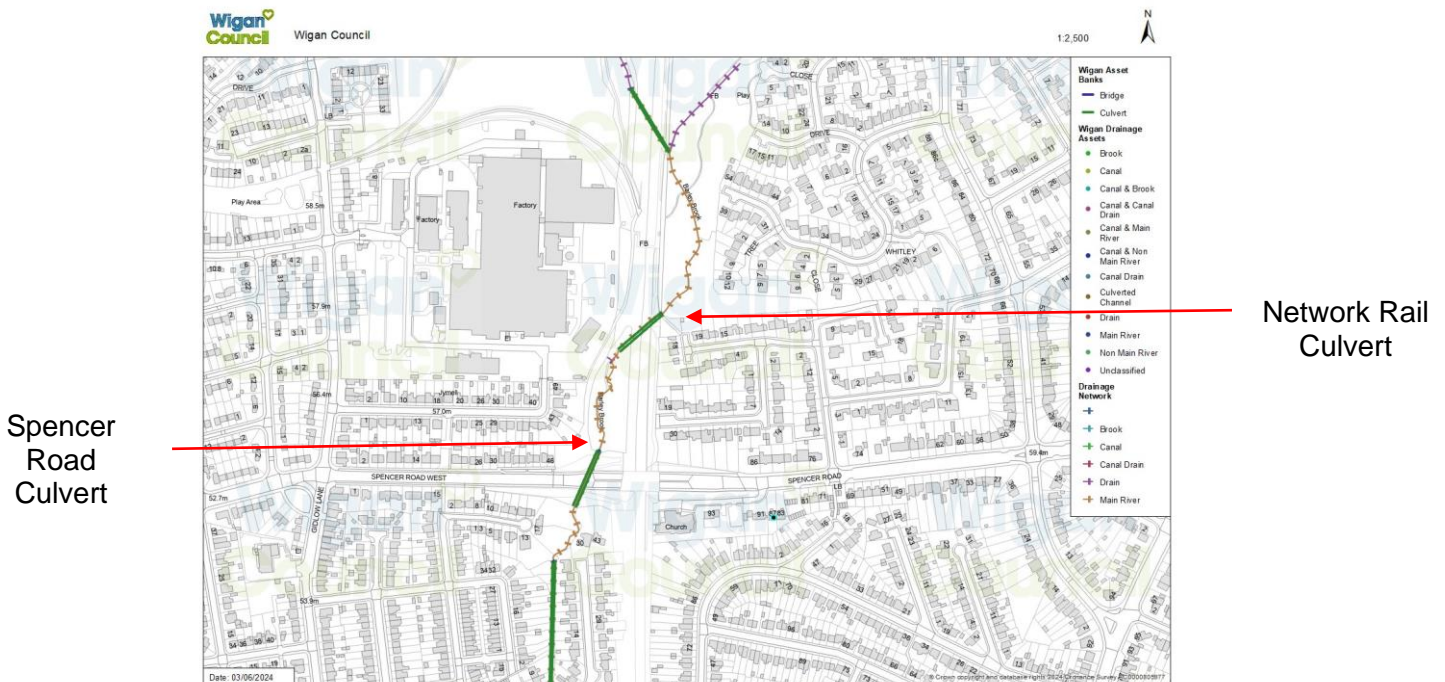
### 3. Flood History

#### 3.1 Possible Causes & Actions

The report provided by Network Rail indicated that a blockage was likely to be present downstream of the railway culvert as the water levels remained at a consistent height on both sides of the structure. Upon receiving this report an officer from Wigan Council's flood risk team investigated the downstream sections of the watercourse and found that the culvert beneath Spencer Road West had become completely blocked by debris. The debris, which consisted of a combination of fly tipped tyres and tree branches, accumulated at the inlet of the culvert severely restricting downstream flows. Once the blockage had been removed the water level receded and conditions within the watercourse upstream of the culvert returned to normal.

It was also found that the debris screen at the inlet to the Spencer Road culvert had been damaged and was no longer operational. A replacement screen has been ordered to prevent blockages within the culvert. The new screen will be designed to prevent debris from blocking the inlet while allowing downstream flows to continue unimpeded.

Following the works to clear the Spencer Road culvert it was observed that water levels remained high just upstream of the culvert beneath the railway. Network Rail investigated and reported that there was a partial blockage that had restricted flows downstream. This signifies that there were multiple blockages along the watercourse that contributed to the flooding. This blockage was cleared by Network Rail immediately following the investigation to ensure that there are no further restrictions on flow.



#### *Figure 4 – Barley Brook Culvert Locations*

Another contributing factor was the inundation of the UU foul pumping station with surface water. United Utilities have reported that the pumping station had been working to capacity throughout the evening and continuously for several days following the incident. The reason for this high demand was caused by excess surface water backing up into the residents' properties and entering the foul sewer.

Further investigation of the watercourse and its structures took place following the emergency works. Representatives from the council and the EA conducted a walkover of Barley Brook revealed that the open section of the watercourse was in good condition and the United Utilities surface water outfall from May Tree Drive was constructed at an appropriate level within the channel. This investigation also revealed contradictory information regarding the length of the National Rail culvert. Initially it was believed that the National Rail culvert only extended the width of the railway, however during the walkover it was realised that the culvert extends to Spencer Road with only a short section of open channel just upstream of the Spencer Road culver inlet. With a culvert that is excessive in length there is an increased danger of blockage that could go unnoticed. The EA and Wigan Council have been in contact with National Rail to discuss the inspection schedule for Barley Brook. An underwater survey is due to take place this year, the EA have asked NWR to bring this inspection forward to ensure that all potential restrictions on flow can be cleared.

## **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 a strategic role 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.

#### **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 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.

#### **4.3 United Utilities**

Water and Sewerage Companies are responsible for managing the risks of sewer flooding from their infrastructure. They must also make sure their systems have the appropriate level of resilience to flooding and maintain essential services during emergencies.

For the Wigan Council area, the water company is United Utilities. United Utilities also advises the council on how their assets impact flood risk and the impacts of development on their assets which involves working with developers.

United Utilities also works in partnership with Wigan Council as the LLFA; and the Environment Agency, on how surface water can be managed more sustainably to aid all drainage assets.

### **Riparian Landowners – Network Rail / Wigan Council Corporate Land Management Team**

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 withing 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 main river residents are advised to report incidents to the EA, by calling 0345 988 1188.

#### **Highways Authority**

Wigan Council is responsible for maintaining the roads and pavements of adopted highways in the Borough. An adopted highway is one where the local authority has taken on the legal responsibility for maintenance. The Council is responsible for the drainage of surface water from the adopted highways.

In addition to this regular cleaning programme, the Council will attend to any reports of blocked gullies to investigate the problem and take remedial action to restore them.

The gullies at this location are on an annual clean cycle.

## 5. Recommendations

The method for prioritising works on watercourses varies for each risk management authority involved, and is dependant on factors such as resources available, operational area, and interpretation of 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> <li>• Consider options to remove the highway drainage from the public drainage system.</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>
United Utilities	<ul style="list-style-type: none"> <li>• Establish a maintenance schedule for the checking and clearing of the outfalls.</li> <li>• Survey the surface water system for defects.</li> <li>• Consider options to remove the connection to the combined system.</li> <li>• Consider options to remove the highway drainage from the public drainage system.</li> </ul>
Environment	<ul style="list-style-type: none"> <li>• Continue to work in partnership with other authorities,</li> </ul>

Agency	<p>providing information and comments when appropriate.</p> <ul style="list-style-type: none"> <li>• Consider options to maintain this main river annually.</li> <li>• Understand fluvial flood risk and how this impacts on United Utilities modelled flood risk (ie. at which point would the outfall become surcharged if the river was to burst its banks)</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>
Network Rail	<ul style="list-style-type: none"> <li>• Undertake an underwater survey of the culvert.</li> <li>• Regularly undertake Inspections of Network Rail assets while adhering to a routine maintenance schedule.</li> </ul>

## 6. Conclusions

In conclusion, the main causes of the flooding can be attributed to the extreme weather event experienced on the 6<sup>th</sup> of November in conjunction with multiple restrictions downstream of the United Utilities Sewer discharge which caused a back up in the system.

The works completed by Wigan Council and Network Rail to remove blockages from the watercourse have had the most impact on the reduction of flood risk to the area. Further works planned by Wigan Council to reinstate the debris screen on the Spencer Road culvert will help to prevent blockages and will make it safer and easier to remove debris from the channel. To guarantee that this debris screen will be effective in preventing further flood events a maintenance and inspection regime will need to be implemented by Wigan Council's highways department. Furthermore, the EA have instructed Network Rail to conduct an underwater survey of their drainage assets. The EA have been in constant contact with Network Rail to ensure that their section of Barley Brook is being inspected and maintained as required.

As with all flooding events a residual risk is still present here as the areas of May Tree Drive and Havenwood Road are within a modelled flood risk zone for surface

water. This means that heavy downpours could result in flash flooding that would overwhelm the surface water drainage system. Furthermore, the water levels within Barley Brook could raise above the United Utilities outlet if a blockage is present.

## **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**

<http://www.wigan.gov.uk/Services/Environment/DrainsSewers/Landdrainageditchesandstreams.htm>

### **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 08456020406 (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



**Environment Agency - Historic Flood Warnings**

<https://www.data.gov.uk/dataset/d4fb2591-f4dd-4e7f-9aaf-49af94437b36/historic-flood-warnings>

**Appendix 1**

**Photographs of flood event**



*Figure 1 - Flooding at Inlet to Network Rail Culvert. Inlet is submerged. Facing Downstream*



**Figure 2 - Flooding at Inlet to Network Rail Culvert (Morning 06/11/2023) Facing Downstream.**



**Figure 3 - Flooding at Inlet to Network Rail Culvert (Evening 06/11/2023) Facing Downstream.**



***Figure 4 - Surface Water Flooding on May Tree Drive (Evening 06/11/2023) approximately 7pm. Highway gullies submerged, and multiple properties flooded internally.***



*Figure 5 - Flooding to Property on May Tree Drive (Evening 06/11/2023)*



***Figure 6 - Inlet to Network Rail Culvert Under Normal Conditions. Facing Downstream. Winter 2024.***



**Figure 7 - Outlet of UU Surface Water Sewer Under Normal Conditions. Upstream of Network Rail culvert. Winter 2024.**