



# Norfolk County Council

## Investigation Report into the flooding in Mill Lane, Hellesdon in 2019

Report Reference: FIR042

Draft Report prepared by Nathan Harris on 20 April 2020



## **Executive Summary**

### **(a) Flooding incidents and causes**

This report includes the internal flooding to three properties in June 2019. The properties included within this report are located in Hellesdon, Norwich; within the Wensum Ward.

The flooding that occurred was caused by

- Drainage system, unmaintained or obstructed
- Surcharging of the drainage system

This led to the internal flooding of 3 properties.

### **(b) Key recommendations**

Our conclusion is that:

Property owners of affected properties should:

- Determine if it is appropriate for them to protect their buildings through flood protection measures
- Seek their own legal advice if they are concerned about the responsibilities and liabilities of themselves and/or others.

Norfolk County Council should:

- Determine the integrity and/or capacity of their assets where they have contributed to the flooding of properties to understand the systems role in accommodating rainfall events as well as mitigating flooding
- Seek to determine the ownership and boundaries of the system.
- Communicate with affected residents where their assets have given rise to the flooding of properties
- Review the appropriateness of their response to flooding
- Review and monitor the delivery of recommendations within this and other relevant flood investigation reports

## **Justification for Flood Investigation**

The purpose of this report relates to Section 19 of the Flood and Water Management Act 2010. This legislation sets out that the County Council, in its role as Lead Local Flood Authority for Norfolk, should investigate the role and response of organisations to significant flooding incidents. Significant flooding is deemed to be those incidents that impact upon people, property and infrastructure.

The Norfolk Local Flood Risk Management Strategy Policy UC2 (Flood Investigation) sets out the thresholds the Lead Local Flood Authority will apply to its formal flood investigation role. This states an investigation will be undertaken where it is determined that;

- (a) There is ambiguity surrounding the source or responsibility for a flood incident, and/or;
- (b) There is cause to investigate the flood incident, due to either its impact, or consequence

In judging the impact or consequence of a flood event Norfolk County Council uses the criteria set out below;

- Any risk to loss of life or serious injury.
- One or more residential or business property flooded internally.
- One or more critical services/installations and vulnerable person's properties flooded internally; and/or rendered inoperable or their functions severely compromised due to the access to the premises being impassable; and/or resulting in a loss of service impacting on the local community.
- Any section of a national category 3 road or above made impassable due to flooding; and/or flooding to priority 1 and 2 gritting routes.
- Flooding adversely impacting a rail link by making it impassable.

It was deemed necessary to complete a formal Investigation Report into the flooding in Mill Lane, Hellesdon 2019 as:

- multiple residential properties were internally flooded.

This impact met Norfolk County Council's threshold for triggering the undertaking of a formal flood investigation.

The flood investigation report aims to:

- provide a transparent and consistent review of recent flooding.
- identify those organisations and individuals who have responsibility to manage the causes of the flooding.
- identify what their response has been or will be to the flooding.
- make recommendations as to how the flood risk could be mitigated or reduced.
- provide new evidence of the level of risk faced by communities in Norfolk that can be used in current funding bids in support of flood mitigation schemes.

Mitigation measures include property level protection: reinstating lost drainage features: reviewing or increasing maintenance regimes and increasing the capacity of the drainage network.

The flood investigation report cannot:

- Resolve the flooding issues or provide designed solutions.
- Force authorities to undertake any of the recommended actions.

### **Flooding on Mill Lane, Hellesdon**

#### **Description of the area**

The affected properties are a row of terrace cottages that sit within proximity of the River Wensum. The properties sit below the C480, Low Road/Hellesdon Road and highway water from this location flows in a westerly direction towards the River Wensum past the properties.

#### **Flood incidents on Mill Lane**

The three properties were internally flooded on the following date:

- 10<sup>th</sup> June 2019

<b>Date of Incident</b>	<b>Incident as reported</b>	<b>Who and What was the response to the flood incident</b>
10/06/2019	<p>On the 10<sup>th</sup> June 2019 3 properties were internally flooded on Mill Lane, Hellesdon.</p> <p>This incident was reported by:</p> <ul style="list-style-type: none"> <li>• A resident using an electronic flood report on the 18<sup>th</sup> June 2019. (FWF/19/1128) (FWF/19/1129) (FWF/19/1130)</li> </ul>	<ul style="list-style-type: none"> <li>• NCC Highways Carried out maintenance work to the highway drainage system.</li> <li>• NCC assessed the validity and impact of the flood report</li> </ul>

There have been several other recorded incidences of external flooding to property on Mill Lane as listed in the table below.

<b>Date of incident</b>	<b>Impact</b>	<b>Rainfall intensity</b>
04/04/2018	External flooding to garden/driveway	Unknown
02/06/2018	External flooding to garden/driveway	Unknown
30/07/2018	External flooding to garden/driveway	Unknown
31/07/2018	External flooding to garden/driveway	Unknown
09/08/2018	External flooding to garden/driveway	Unknown
21/09/2018	External flooding to garden/driveway	Unknown
28/10/2018	External flooding to garden/driveway	Unknown
16/12/2018	External flooding to garden/driveway	Unknown
19/06/2019	External flooding to garden/driveway	Unknown
25/06/2019	External flooding to garden/driveway	Unknown

Anecdotal evidence suggests that the external flooding on all these dates was caused by rainfall events of more than 5-6mm and with an intensity of approximately more than 5mm/hour.

In response to the above reports of external flooding, Norfolk County Council highways area team visited Low Road to inspect the highways gulley's on the 9<sup>th</sup> August 2018 during a rainfall event. They reported all drains were working except for one gulley, which was heavily silted. Following this inspection, gully cleaning on Low Road between Hellesdon Hall Road and Princess Beatrice Close was programmed.

On the 16<sup>th</sup> August 2018 members of the Water Management team visited the affected properties and by chance saw the flooding in action. They were even able to conduct a dye tracer test with a resident whilst it was raining which corroborated evidence of an issue sent on the 9<sup>th</sup> August 2018. This visit also identified that the system outfalls into the River Wensum at the end of Hellesdon Mill Lane through what looked like a very old drainage system.



### **Actions Undertaken to since internal flooding on the 10<sup>th</sup> June 2019:**

Subsequent to the internal flooding of the 10<sup>th</sup> June 2019 NCC Highways undertook a partial CCTV survey of the system. As a result of this survey and other evidence provided i.e. egress of water from the sump hole above the break in the drain, hitting hard of the jetter cleaning head whilst trying to clear the blockage along with discussions with neighbours an exploratory excavation was undertaken within the garden of one of the affected properties. This investigation identified an issue with a section of the old pipe work, this was duly replaced and the excavation was reinstated.

To date there have been no further reported incidents of flooding external or otherwise at this location.

### **Recent rainfall within the catchment**

This report seeks to draw on rainfall data to ascertain the intensity of the rainfall events experienced in the catchment that led to the flooding. This analysis is useful in assessing (in broad terms) if the design capacity of drainage systems within the affected areas was exceeded.

Norfolk County Council has sought to use data from rain gauges where incidents of flooding are located within a 2.5 km radius of the instrumentation. This distance meets the requirements of British Standards and aims to capture localised rainfall patterns. There is a rain gauge within 2.5km of the affected property however levels of reported rainfall on the 10<sup>th</sup> June 2019 are below that to allow measurement of a return period.

To summarise the rainfall event on the 10<sup>th</sup> June 2019 8.4mm of rain fell over a 5-and-a-half-hour period (11:00 to 16:30) with a further 11.8mm of rain falling over a 3-and-a-quarter-hour period (20:30 – 23:45), a total of 20.2mm over a 12-and-a-three quarter-hour period.

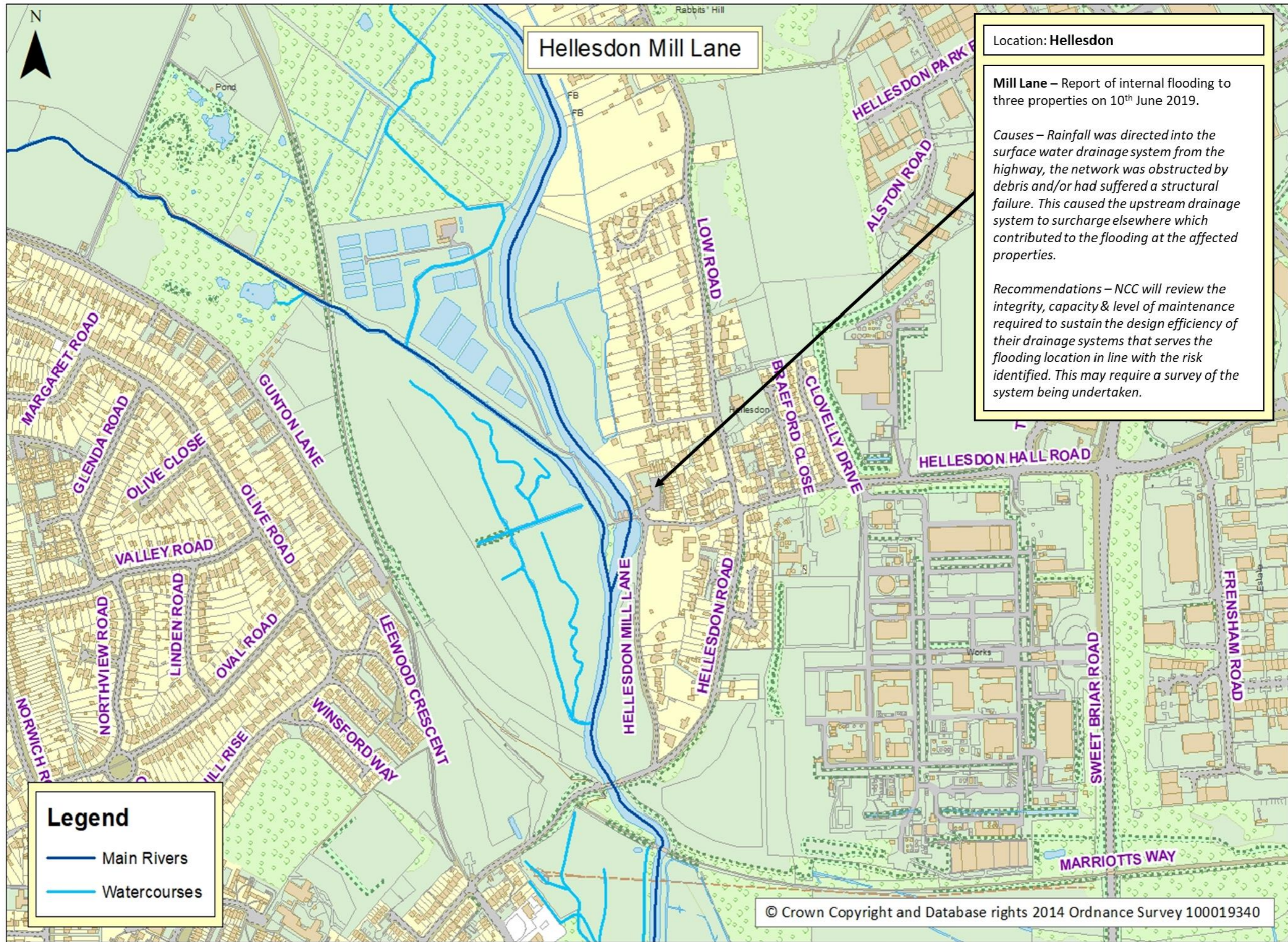
#### Causes of flooding within the catchment and recommendations

The findings of the investigation are detailed on the following pages. There is a map that details the causes that led to flooding within the location as well as when and where they were experienced. It also sets out which Risk Management Authorities have responsibility to help manage the causes of the flooding. The maps set out recommendations to mitigate the causes and impacts of the flooding experienced within this catchment.

Following flooding to people, property and infrastructure;

- Risk Management Authorities should
  - communicate with affected residents where their assets have given rise to the flooding of properties.
  - review the appropriateness of their response to flooding.
  - Determine the integrity and/or capacity of their assets where they have contributed to the flooding of properties to understand the systems role in accommodating normal rainfall events as well as mitigating flooding.
- Property owners of affected properties should seek their own legal advice.
- NCC should
  - incorporate all relevant information of actual flooding into the review of the Norfolk Preliminary Flood Risk Assessment (“PFRA”).
  - review and monitor the delivery of recommendations within this and other relevant flood investigation reports

Detailed map



## **Disclaimer**

Although every effort has been taken to ensure the accuracy of the information contained within the pages of the report, we cannot guarantee that the contents will always be current, accurate or complete.

This report has been prepared as part of Norfolk County Council's responsibilities under the Flood and Water Management Act 2010. It is intended to provide context and information to support the delivery of the local flood risk management strategy and should not be used for any other purpose.

The findings of the report are based on a subjective assessment of the information available by those undertaking the investigation and therefore may not include all relevant information. As such it should not be considered as a definitive assessment of all factors that may have triggered or contributed to the flood event.

The opinions, conclusions and any recommendations in this Report are based on assumptions made by Norfolk County Council when preparing this report, including, but not limited to those key assumptions noted in the Report, including reliance on information provided by third parties.

Norfolk County Council expressly disclaims responsibility for any error in, or omission from, this report arising from or in connection with any of the assumptions being incorrect.

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The implications for producing Flood Investigation Reports and any consequences of blight have been considered. The process of gaining insurance for a property and/or purchasing/selling a property and any flooding issues identified are considered a separate and legally binding process placed upon property owners and this is independent of and does not relate to the County Council highlighting flooding to properties at a street level.

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## **Appendix A - Key definitions and responsibilities**

### **What is flooding?**

Section 1 of the Flood and Water Management Act 2010 states that: "Flood" includes any case where land not normally covered by water becomes covered by water. In addition, this section adds the caveat: "But "flood" does not include – (a) a flood from any part of the sewerage system, unless wholly or partly caused by an increase in the volume of rainwater (including snow and other precipitation) entering or otherwise affecting the system, or (b) a flood caused by a burst water main (within the meaning given by Section 219 of the Water Industry Act 1991)."

### **What is internal and external flooding?**

For the purposes of this report, properties that have internally flooded are those where it is considered that water has entered the fabric of the building;

- Basements and below ground level floors are included.
- Garages are included if in the fabric of the building. Garages adjacent or separate from the main building are not included.
- Occupied caravans are included but not tents.

External flooding included those properties where water has entered gardens or surrounding areas which restricts access, affects the highway or where flooding has disrupted essential services to the property such as sewerage. For businesses this includes those where the flood waters are directly preventing them trading as usual.

### **What is Local Flood Risk?**

Local Flood Risk is defined by the Flood and Water Management Act 2010 as being flood risk from surface runoff, groundwater and ordinary watercourses.

- 'Surface runoff' means rainwater (including snow and other precipitation) which is on the surface of the ground (whether or not it is moving) and, has not entered a watercourse, drainage system or public sewer.
- 'Groundwater' means all water which is below the surface of the ground and in direct contact with the ground or subsoil.
- 'Ordinary Watercourse' means a watercourse that does not form part of a main river and includes a reference to a lake, pond or other area of water which flows into an ordinary watercourse.

## **Roles and Responsibilities of Risk Management Authorities**

Below is a short summary of those groups and Risk Management Authorities ("RMAs") that have a role in managing flooding within Norfolk. The listing of responsibilities includes those duties or powers that directly relate to managing the flood incidents or consequence. All RMAs have a duty to cooperate with other RMAs.

### **1. Norfolk County Council (as Lead Local Flood Authority)**

- Duty to investigate significant flooding from any source.
- Duty to maintain a register of structures or features which affect flood risk from all sources.
- Power to undertake works to manage flood risk from surface run-off and groundwater.
- Powers to regulate activities on ordinary watercourses outside of Internal Drainage Board areas.
- Duties as a Category 1 Responder for Emergency Planning and the Fire & Rescue Service.

### **2. District Councils**

- Powers to undertake works on ordinary watercourses outside of IDB areas.
- The Local Planning Authority for their District area and determine the appropriateness of developments and their exposure and effect on flood risk.
- Duties as a Category 1 Responder for Emergency Planning.

### **3. Internal Drainage Boards (“IDBs”)**

- A duty to act in a manner consistent with the national and local strategies and guidance when exercising FCERM functions.
- Duty to act in a manner consistent with Local Flood Risk Management Strategies when exercising other functions that may affect flood risk.
- Powers to regulate activities on ordinary watercourses within IDB areas.
- Exercise a general power of supervision over all matters relating to the drainage of land within their district.
- Powers to undertake works on ordinary watercourses within IDB areas.

### **4. Highway Authorities (Norfolk County Council / Highways England)**

- Powers to undertake works to manage water on the highway and to move water off the highway.
- Enforcement powers to unauthorised alterations, obstructions and interferences with highway drainage.
- Have responsibilities for culverts vested in the highway. Currently NCC discharges its responsibilities associated with bridges and culverts (whether as owner or highway authority) through the inspection of condition (undertaken by the Bridges team) and through maintenance activity (delivered on a as needs basis by the relevant Highways area team).

### **5. Water Companies**

- Undertake cost beneficial capital schemes to alleviate or eliminate flooding where the flood event is associated with a failure of their assets.
- Duty to provide, improve, maintain and operate systems of public sewers and works for the purpose of effectually draining an area.
- Are responsible for flooding from their foul, combined and surface water sewers, and from burst water mains.
- Maintain ‘At Risk Registers’ for Ofwat that record properties that have flooded from public foul, combined and surface water sewers and that are at risk of flooding again.
- Water companies respond to reports from the public of flooding associated with their assets and determine an appropriate response in line with their standards or customer service.
- Duties as a Category 2 Responder for Emergency Planning.

### **6. Riparian Owners**

- Duty of care towards neighbours upstream and downstream, avoiding any action likely to cause flooding.
- Entitled to protect their properties from flooding.
- May be required to maintain the condition of their watercourse to ensure that the proper flow of water is unimpeded.