



HILLINGDON
LONDON

Local Flood Risk Management Strategy

FOREWORD

Our climate is changing, and we are already experiencing more and more critical rainfall events. With these events comes an increased probability of flooding. Floods bring huge levels of immediate disruption and pose severe risk to people and property. A flood is not just a short term problem though, for those who have experienced flooding the harmful consequences remain long after water levels return to normal.

The London Borough of Hillingdon has already declared a climate emergency with bold ambitions to reduce its own carbon emissions by 2030. However, many impacts of climate change are now inescapable with more extreme weather events becoming increasingly the norm.

As the Lead Local Flood Authority, the Council is committed to being at the forefront of the action to protect our residents and businesses. This Local Flood Risk Management Strategy is a requirement of the Flood and Water Management Act 2010 and sets out our approach to managing flood risk. We have already taken measures to reduce flood risk across the borough and these are set out in the Strategy, but we also commit to further actions and objectives to respond more aggressively to the increasing risk of flooding.

The Strategy also provides opportunities though. Creative approaches to flood risk management can bring additional benefits in managing drought as well as enhancing opportunities for nature. We intend to pursue the kinds of flood risk management projects that provide more than just flood risk management.

The Strategy shows our intentions; but we can't work alone. We need to work with our residents and communities alongside key partners such as the Environment Agency and Thames Water to realise the objectives of the Strategy. Consequently, it is important for this Strategy to reflect the aspirations of those we need to work with.

We are therefore keen for the consultation on this Strategy to reach all parts of the borough, to generate interest and to give the opportunity for our communities to help shape our approach to flood risk management.

Councillor Lavery
Cabinet Member for Residents' Services

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ACRONYMS AND ABBREVIATIONS

Abbreviation	Definition
BNG	Biodiversity Net Gain
CDA	Critical Drainage Area
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
FAS	Flood Alleviation Scheme
FCERM	Flood and Coastal Erosion Risk Management
FRMP	Flood Risk Management Plan
FWMA	Flood and Water Management Act 2010
GI	Green infrastructure
GiA	Grant in Aid
Hillingdon	The geographical area of the London Borough of Hillingdon
Hillingdon Council	The Local Authority governing the London Borough of Hillingdon
HRA	Habitats Regulations Assessment
LFRMS	Local Flood Risk Management Strategy
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
MAFP	Multi-Agency Flood Plan
NFM	Natural Flood Management
PFR	Property Flood Resilience
RFCC	Regional Flood and Coastal Committee
RMA	Risk Management Authority
RoFSW	Risk of Flooding from Surface Water
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment
SuDS	Sustainable Drainage Systems
SWMP	Surface Water Management Plan
TfL	Transport for London
Thames Water	Thames Water Utilities Limited
UGF	Urban Greening Factor

1 A LOCAL FLOOD RISK MANAGEMENT STRATEGY

1.1 Local Flood Risk Management Strategy

A Local Flood Risk Management Strategy (LFRMS, 'the Strategy') is a requirement of the Flood and Water Management Act 2010 ('the Act'). It needs to set out information on 'local flood risks' relating to surface water runoff, groundwater and ordinary watercourses. It then requires the responsible authority to set out how it will set about reducing the flood risk associated with these sources of flooding.

The Council's Strategy goes beyond just these local risks and sets out a collaborative approach with other responsible authorities to ensure that the approach to flood and water management within Hillingdon is captured in one place.

Why do we need an LFRMS?

The Act established the roles and responsibilities for different flood risk management authorities which includes the Council as the Lead Local Flood Authority for the borough.

This is an important leadership role in organising and progressing proactive management of flood risk. In order to achieve this, Section 9 of the Act establishes the requirement to produce a LFRMS. The Strategy needs to be kept up to date to reflect changes to legislation and to ensure consistencies with other national and regional plans. The table below sets out what needs to be included within the Strategy.

1	the risk management authorities in the authority's area
2	the flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area
3	the objectives for managing local flood risk (including any objectives included in the authority's flood risk management plan prepared in accordance with the Flood Risk Regulations 2009)
4	the measures proposed to achieve those objectives
5	how and when the measures are expected to be implemented
6	the costs and benefits of those measures, and how they are to be paid for
7	the assessment of local flood risk for the purpose of the strategy
8	how and when the strategy is to be reviewed
9	how the strategy contributes to the achievement of wider environmental objectives

Additional assessments

The LFRMS is a local strategy which means it must also be assessed through both a Strategic Environmental Assessment (SEA) and Habitats Regulations Assessment (HRA).

The LFRMS has been screened in accordance with the SEA requirements to determine if it will have a likely significant environmental effect. Completion of an SEA is a requirement of plans and strategies under the [Environmental Assessment of Plans and Programmes Regulations \(2004\)](#) (which implements the [European SEA Directive \(2001\)](#)). The SEA screening report can be found in Appendix A.

An HRA determines if delivery of the LFRMS will have any negative effects on protected European habitat sites. Undertaking an HRA is a requirement for plans and strategies under the [Conservation of Habitats and Species Regulations \(2017\)](#). The HRA screening report can be found in Appendix C.

Presentation of the Strategy

This Strategy will be a 'living document'. Although presented as a single document within this consultation, the component sections will form individual parts that will be hosted on the Council's webpages. This allows for the various sections to be kept more readily up to date without a full and resource intensive review of the whole Strategy. It also allows the Council to add or amend the Strategy over time so that it is entirely consistent with parent legislation and policies as well as being able to reflect aspirations of our communities. The online presentation will be set around the following themes which reflect the objectives in the LFRMS.



It is considered that this approach will enable the Council to be more responsive to the changing nature of flood risk, result in a more collaborative approach to flood management and will therefore better serve our communities.

1.2 Strategic objectives

The Strategy is required to be set around a series of objectives. The proposed objectives are outlined below linked to the themes set out in the previous section.

Theme	Objective
The Local Flood Risk Management Strategy	Understanding the Local Flood Risk Management Strategy
Sources of Flooding	Improve knowledge of flood risks in the London Borough of Hillingdon
Working with Others	Improve the collaboration of Risk Management Authorities, and understanding of roles and responsibilities, to manage flood risk effectively
Opportunities and Projects	Identify and implement opportunities for flood risk management
New Development and Planning	Ensure that development within the London Borough of Hillingdon accounts for and mitigates flood risk
Local Communities and Flooding	Engage with communities to develop the awareness of flood risk in local areas and improve their resilience

1.3 Action Plan

The objectives set out the strategic intentions of the Council, but they require more specific actions to facilitate delivery. Consequently, an Action Plan has been prepared which sets out how the Council will turn strategic aspirations into outcomes that better manage flood risk. The Action Plan will be reviewed on an annual basis to ensure it is kept up to date and reflective of a changing climate.

The actions for each objective are included at the end of the relevant chapter; the full Action Plan can be found in Appendix A.

1.4 Climate Change

As a result of climate change, the UK can expect to see more extreme weather events which are likely to include more frequent and intense rainfall events. These events will increase the risks of flooding making it increasingly important that Hillingdon adapts to, and mitigates, future flood risk. Conversely, it is likely there will be longer periods of drought and extreme

heat where the lack of water can have severe implications, particularly for the natural environment.

The Council adopted its [Strategic Climate Action Plan](#) in 2021 which sets out how Hillingdon will respond to the issue of climate change at a local level. This sets out how the Council is seeking to adapt to the changing climate. The Strategy sits alongside the Strategic Climate Action Plan in delivering measures which will protect Hillingdon from current flood risk but also against future risk. The delivery of the Strategy plays an important role in adapting and mitigating this risk and seeks to deliver flood risk management in alignment with Hillingdon's climate change targets. The Strategy achieves this by incorporating consideration of climate change and the environmental benefits to be found in flood risk management into the actions.

There is also a requirement to produce a Climate Adaptation and Mitigation Action Plan which will overlap significantly with the Strategy. This will be developed in due course once the Strategy has been adopted.

1.5 Monitoring

The Strategy will be kept under review to ensure it reflects any major changes to relevant legislation. By breaking the Strategy into component parts, the Council is able to amend or add to the various sections without recourse to a holistic review. This places the Council in a better position to be more responsive to changing circumstances and allows communities and residents the opportunity to take a more proactive role in shaping how the Council responds to flood risk.

Delivery of the Strategy will be evaluated by the LLFA through monitoring delivery of the actions in the Action Plan. Each action will be reviewed against internal targets for the timing of delivery and stage of progress. This will enable the LLFA to track and report on progress of delivery of the LFRMS. In this context, the LLFA performs the statutory function of ensuring the Council's approach to flood risk management is aligned with the adopted Strategy.

It should also be noted that the Action Plan will be reviewed once full details of the SuDS Approving Body (SAB) have been released. The Council will become a SAB following activation of the relevant section of the Act. This is a new role that has not yet been defined but will require new development to have drainage proposals subject to a separate application process to be overseen by the SAB. Further information on the SAB can be found in Section 5.2.1.

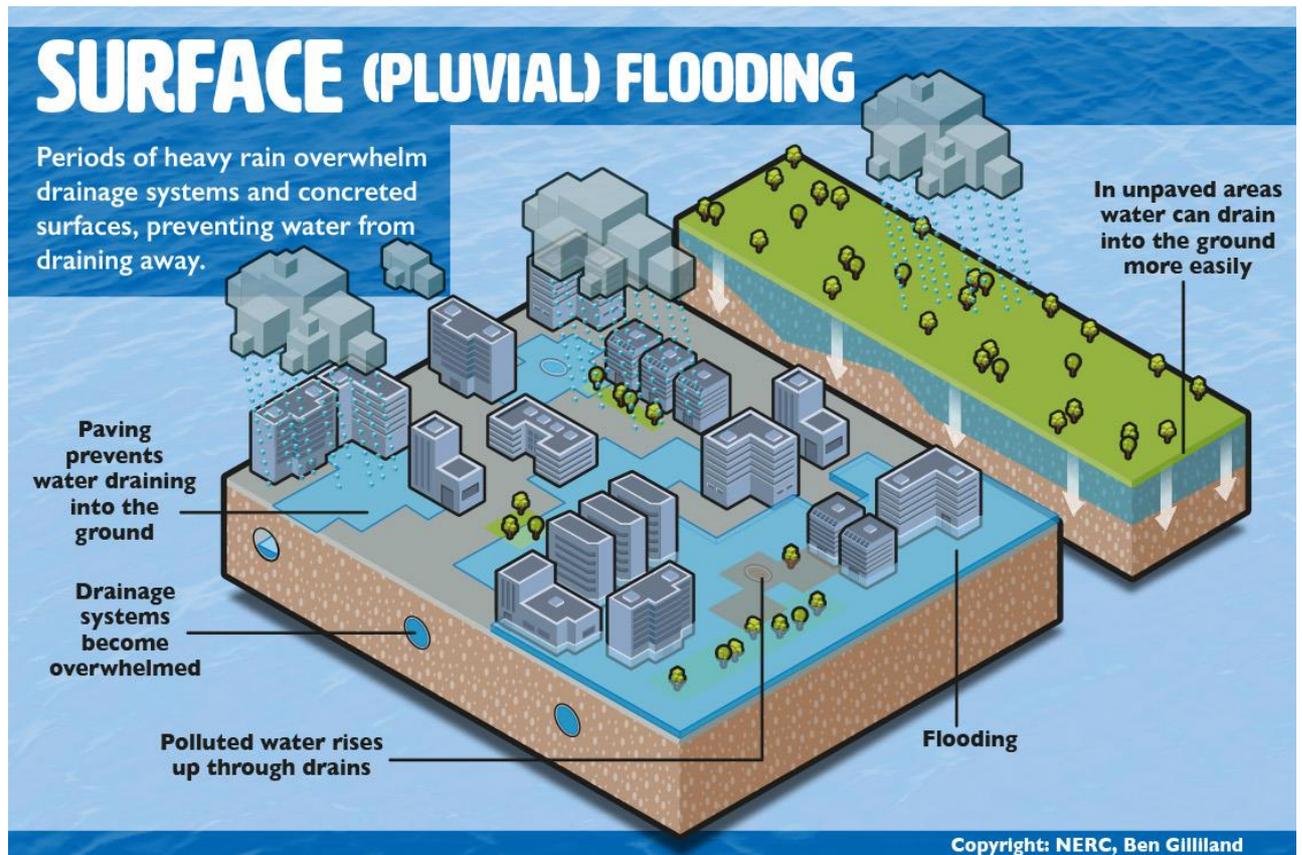
2 SOURCES OF FLOODING

2.1 Flood risks in Hillingdon

Flooding is generally a result of rainfall although other causes do exist such as groundwater flooding that can occur from natural springs reaching the surface. However, whilst the route cause of flooding may be obvious how it reaches people and property is far more complicated. The pathway from rainfall to flooding are collectively known as the 'sources of flooding'; to complicate matters further, different bodies are responsible for different sources of flooding.

2.1.1 Surface water

Flooding from surface water, also known as pluvial flooding, occurs when the volume of rainwater exceeds the capacity of drainage systems and is unable to drain quickly enough into the ground through infiltration. This type of flooding typically occurs during periods of intense rainfall and is a particular issue in urban areas due to the high coverage of impermeable surfaces. Short but intense periods of rainfall can often overwhelm existing but dated drainage infrastructure causing a significant degree of disruption. These events, sometimes known as flash flooding, are harder to predict and come with less locally specific warnings.



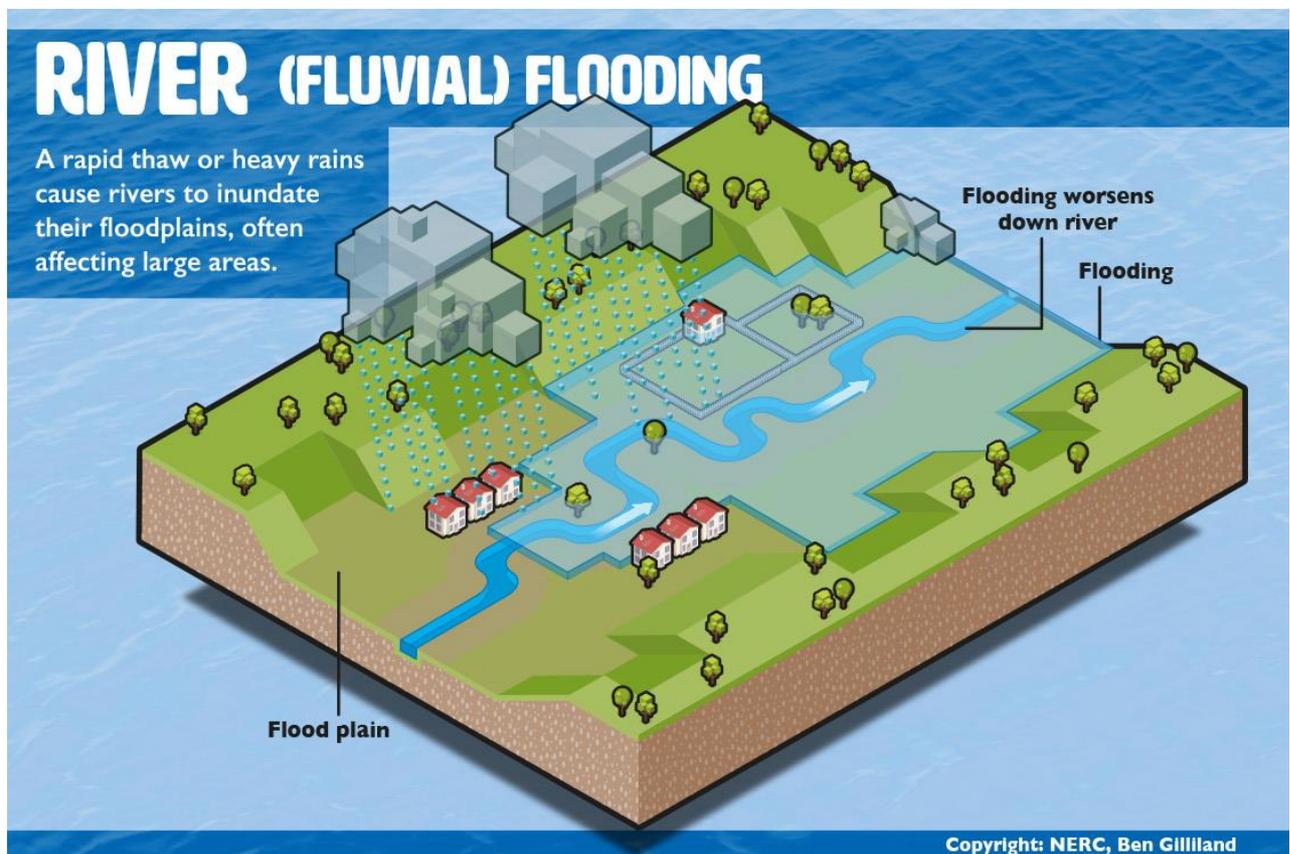
Source: floodhub.co.uk

2.1.2 Rivers

Flooding from rivers, also known as fluvial flooding, happens when the volume of flow in a river exceeds its capacity and the excess water spills out, or breaches the containment area. In Hillingdon the principle rivers are the River Colne, the River Crane and the River Pinn. There are a number of other watercourses that are classed as main rivers throughout the borough. Main rivers are managed by the Environment Agency. A map of main rivers can be seen [here](#).

Watercourses other than these are categorised as ordinary watercourses and are within the remit of the LLFA although their management, i.e. unrestricted flow is dependent on whoever the landowner is.

River flooding is generally more predictable. Environment Agency telemetry has been strategically placed on the river network to allow automatic monitoring of levels. When levels reach a certain height, warnings are triggered which would then prompt individual flood action plans to be implemented. Current levels can be checked here: [river and sea levels](#).



Source: [floodhub.co.uk](#)

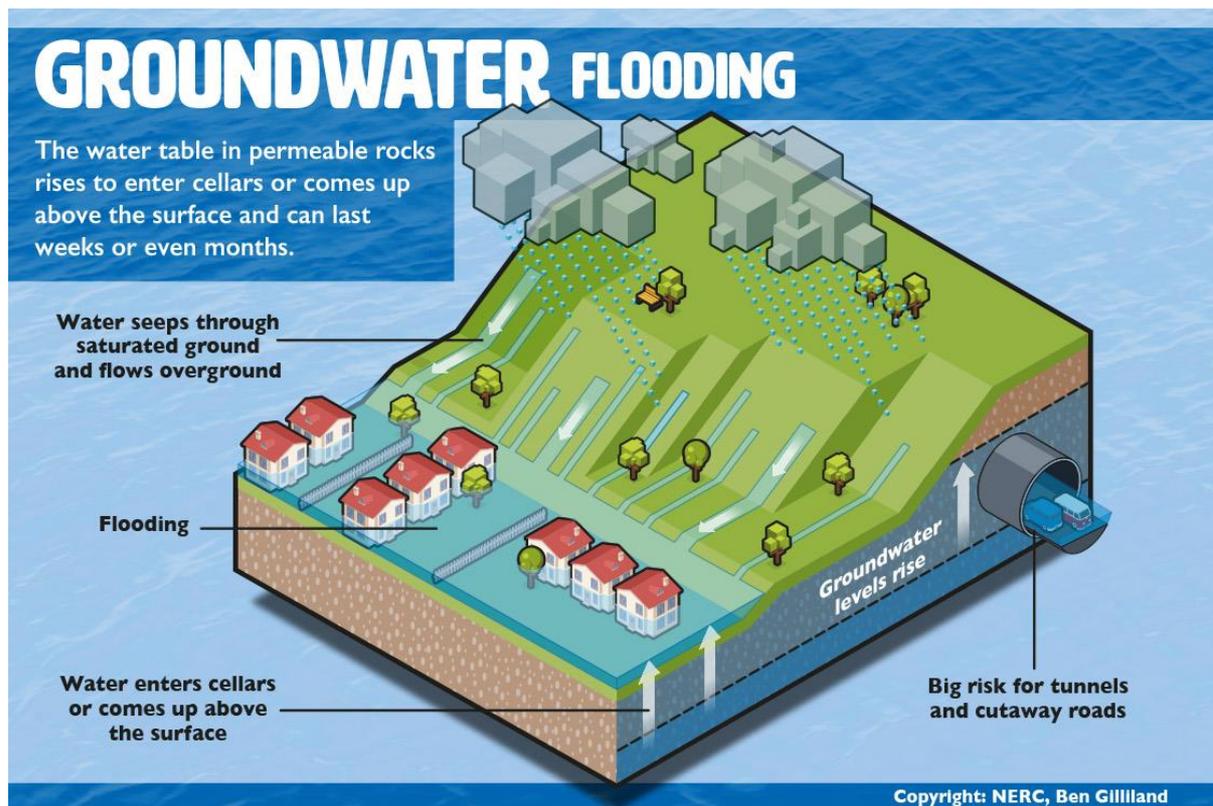
Areas alongside rivers is classified as floodplain. The level of risk changes depending on the distance from the river, or the contours of the land. The Environment Agency categorises areas as being in Flood Zone 1, Flood Zone 2, or Flood Zone 3. The definitions are outlined in the table below. Flood Zone 3 is then divided into Flood Zone 3a and Flood Zone 3b by the Local Planning Authority, in discussion with the Environment Agency and the LLFA. The [West London](#)

[SFRA](#) outlines the methodology used to do this for the boroughs that it covers, including Hillingdon¹.

Flood Zone	Criteria
1	Land with less than 0.1% chance of flooding each year.
2	Land with between 0.1% and 1% chance of flooding each year.
3a	Land with greater than 1% chance of flooding each year.
3b	Functional Floodplain. This is outlined in the West London SFRA as land with a 5% or greater chance of flooding each year and where water has to flow or be stored in a time of flood.

2.1.3 Groundwater

Flooding from groundwater happens when the water table, beneath the ground, rises to the surface of the ground. Groundwater levels are generally highest in early spring and lowest in early autumn. Groundwater flooding is not necessarily directly linked to a specific rainfall event and flood events are usually longer lasting than other causes as they are dependent on the water table reducing which is affected by the permeability of the ground.



¹ The Planning Practice Guidance (PPG) was updated in 2022 which changed Flood Zone 3b from land with greater than 5% chance of flooding to land with greater than 3.3% chance of flooding. For planning applications in Hillingdon the definition of Flood Zone 3b in the West London SFRA will apply. It should be noted that this definition is subject to change when the SFRA is updated.

2.1.4 Sewers

Flooding from sewers happens when the volume of rainwater exceeds the capacity of the sewer network. This can happen because the rainfall event exceeds the capacity that the sewer network was designed to cope with or as a result of a failure, such as a blockage, somewhere in the system. Either of these issues can result in sewers backing up, surcharging, and causing overland flow. The sewer network in Hillingdon is primarily separate surface water and foul water systems, managed by Thames Water Utilities Limited (Thames Water).

Sewer flooding can be highly complicated to understand as the network of sewers is extensive with some parts of the system not mapped. Further, there are areas of combined sewers where foul and surface water discharge to the same network; these carry a greater risk as excess rainfall that overloads this type of sewer can result in surcharging of foul sewage.



source: <https://www.bbc.co.uk/news/uk-england-oxfordshire-55951338>

2.1.5 Artificial sources

Flooding from artificial sources occurs because of a failure of built infrastructure. Reservoirs and canals are potential sources of artificial flooding. Charville Lane FSA (Flood Storage Area), Spout Lane Lagoon, and Ruislip Lido are reservoirs that could cause flooding to areas of land within Hillingdon as a result of failures in infrastructure.

The Grand Union Canal also runs through Hillingdon which is another potential source of artificial flooding. The areas within Hillingdon susceptible to these sources of artificial flooding can be seen here and in the Environment Agency's [map of flood risk from reservoirs](#). Further information is available on the [Reservoir Flood Map Search Facility](#) from the Department for Environment, Food & Rural Affairs (DEFRA) Data Services Platform.

2.2 Recent flooding history

Hillingdon experienced heavy rainfall over winter 2013-2014 which led to a number of flooding incidents across various locations. There was not one single cause with flooding identified from rivers, including the River Colne, surface water and groundwater. In some instances, the floodwaters were persistent and remained for a long period of time due to the difficulty of areas draining back to the river once waters had receded.

In July 2014 and again in June 2016, large volumes of rainfall falling in a short period of time caused primarily surface water flooding. In both instances there was internal flooding of properties, flooding of roads and key infrastructure, including London Underground stations.

Through the course of 2020 and 2021, areas surrounding Bessingby Park in Ruislip, were impacted by flooding on several occasions. A flood investigation was carried out, following the Act [Section 19 guidelines](#), which concluded that the primary cause of flooding was sewer flooding from surface and foul water sewers in Bessingby Park. This investigation led to a collaboration of authorities that resulted in a new flood alleviation measure being completed by the Council in 2022 within the park.

As a LLFA the Council is required to undertake and publish an investigation into flood events where it is 'necessary or appropriate' to do so (Section 19 of the Act). It is important to understand that not every incident of flooding will be investigated via Section 19. In general terms, it will be the larger scale events that will warrant investigations of the magnitude set out in the Act.

Further information on previous flooding in Hillingdon and details of flood investigations undertaken can be found [here](#). Guidance on when investigations will be carried out will be developed further through this Strategy.

2.3 Theme Actions: Sources of Flooding

Objective	Improve knowledge of flood risks in the London Borough of Hillingdon
Action A1	Maintain an upto date record of flood risk data ensuring this is available for others to use.
Action A2	Develop and maintain a method for sharing and recording flood reports with internal departments and external partners.
Action A3	Work with external partners to ensure their records of flooding events, including investigations, are available to the Council.

Action A4	Review the threshold criteria for flood investigations and continue to carry out flood risk investigations when flooding reaches the Section 19 threshold.
Action A5	Use updates to modelling, new information from feasibility studies, and reports of flooding to ensure flood risk information is kept relevant.
Action A6	Continue to use and develop innovative methods for capturing data on flood risk within the borough.

3 WORKING WITH OTHERS

3.1 Flood risks in Hillingdon

When flooding occurs, it is important to understand the source as that will dictate which of the relevant authorities needs to take a lead on finding a solution. The debate about the source of flooding can often be highly technical and sometimes disputed.

For example, extensive rain can overload drainage systems resulting in discharges to rivers being uncontrolled; the source of flooding can therefore be seen as either river flooding, i.e. the responsibility of the Environment Agency; or surface water flooding, i.e. the responsibility of the Lead Local Flood Authority; or the lack of capacity in a surface water drain i.e. the responsibility of Thames Water if it is their asset.

In 2007 there was extensive flooding in the UK leading to a comprehensive review, 'The Pitt Review'. One of the findings in the report highlighted the disparate nature of flood risk management reflected in the examples above:

"Many of the people affected by the events of summer 2007 did not know who to turn to and their problems were passed from one organisation to another."

Although it can be frustrating for those who flood, it is important to determine the source of flooding to ensure that solutions can be achieved. The key is to make this process as streamlined and efficient as possible.

The Pitt Review ultimately led to the Act in 2010 and the defining of Lead Local Flood Authorities to take a greater leadership role in organising the risk management authorities into achieving a common purpose. Considerable progress has been made on the collaborative working between each of the authorities to make the process more efficient, but more can be done.

"The Review believes that the role of local authorities should be enhanced so that they take on responsibility for leading the coordination of flood risk management in their areas. Local authorities already have a substantial role because of their responsibilities for ordinary watercourses, drainage, highways and planning. Their place-shaping role and local democratic accountability will help to ensure that the right local action is taken."

Pitt Review: Lessons from 2007 Floods



Who's responsible for managing flood risk?

Property owner

The property owner is responsible for private drainage and surface water up to the boundary of the property. They may also want to consider property flood resilience (PFR) measures to protect their property from flood damage.

Watercourse (riparian) ownership

You own a watercourse if it runs adjacent to, through, or under your property. This includes both main rivers, and ordinary watercourses such as streams, culverts and ditches. You are responsible for maintaining the natural flow of water and reporting incidents such as blockages and flooding.

Main river and coastal flooding

The Environment Agency (EA) is responsible for managing the risk of main river and coastal flooding. Main rivers are those which are designated as such on the EA's Main River Map. To report incidents and flood risk issues, call the Incident hotline on 0800 80 70 60. To sign up for flood warnings, call Floodline on 0345 988 1188.

Groundwater flooding

The Lead Local Flood Authority (LLFA) are responsible for managing the risk of groundwater flooding. This can occur when periods of prolonged rainfall cause the water table to rise and emerge in basements or above ground.

Public sewers and utility pipes

Water companies (e.g. United Utilities) are responsible for managing the risk of flooding from public sewers and utility pipes. This includes shared sewer pipes where they meet between properties before joining the public sewer.

Highway gullies and drains

Highway roads, footpaths, drains and gullies are the responsibility of the local highway authority which will be either the County Council or the Unitary Authority.

Major roads and motorway drainage

Responsibility of Highways England.

Surface water flooding

The Lead Local Flood Authority (LLFA) are responsible for managing the risk of surface water flooding. This can occur when the capacity of drainage systems on land or roads is exceeded by heavy rainfall.



This resource has been produced by Newground who work in partnership with the Environment Agency

Lead Local Flood Authority (LLFA)

The Lead Local Flood Authority is either the County Council or the District Council (provided it is a Unitary Authority). They are responsible for managing flood risk from ordinary watercourses, surface water and groundwater, and for investigating all flooding incidents where deemed necessary.

Last reviewed: March 2021

For more information visit:
www.thefloodhub.co.uk

@TheFloodHub

3.2 Hillingdon Council – The Lead Local Flood Authority

Hillingdon Council plays a key role in managing local flood risk within Hillingdon, with responsibilities shared across different internal departments, for example the Hillingdon Highways Team are responsible for highway drainage on public roads not managed by TfL.

Importantly Hillingdon Council, as the Lead Local Flood Authority (LLFA), have the following responsibilities, outlined under the [Flood and Water Management Act \(2010\) \(FWMA\)](#):

- Prepare and maintain a Local Flood Risk Management Strategy (LFRMS).
- Perform works to manage local flood risk, within the authority area, such as flood alleviation schemes (FASs).
- Maintain an asset register, which records features in Hillingdon with a significant effect on flooding.
- Undertake flood investigations when a flooding event occurs which meets the flood investigation criteria.
- Maintain the flow of ordinary watercourses, which includes regulating developments and structures which could affect an ordinary watercourse.
- Provide advice as a statutory consultee on surface water drainage proposals of major developments for Hillingdon's Local Planning Authority (LPA).

The LLFA also has responsibilities under the Flood Risk Regulations (2009) (FRR):

- Determining whether there is a significant flood risk in its authority area, identifying where the risk is located (flood risk areas) and detailing this within a Preliminary Flood Risk Assessment (PFRA).
- Preparing in relation to each relevant flood risk area a flood hazard map, and a flood risk map.
- Prepare a flood risk management plan in relation to each relevant flood risk area.
- Co-operate with any other relevant authority which is exercising its function under the FRR.

In the context described above, the LLFA is a statutory function of the Council. It therefore ensures that the Council meets its legislative obligations but also independently analyses the work of the Council and other responsible authorities.

3.2.1 Catchment Plan

[The Catchment Plan](#) is a recent project by Hillingdon Council to help the implementation of flood mitigation measures across Hillingdon. It was produced in response to significant flooding that occurred in Hillingdon in 2016, with a combination of sources of flooding across disparate locations making it clear that no single flood defence would protect against all risks.

It was identified that a holistic approach was required. Funding from the Environment Agency was secured, and the Catchment Plan was created. It provides an evidence base of locations

where action is required to manage flood risk, a review of how these areas are prioritised, and potential opportunities for work.

3.2.2 Partnership working

Hillingdon Council, as part of its flood risk management work, is involved in a number of partnerships. Different partnerships serve different purposes but contribute to the overall collaboration and efficient information sharing required for effective flood risk management.

The **Northwest London Strategic Partnership** is formed of six London Boroughs (Barnet, Brent, Ealing, Harrow, Hillingdon and Hounslow) along with the Environment Agency and Thames Water Utilities Limited (Thames Water). The Partnership meets quarterly to discuss flood risk matters, including project opportunities and updates, funding opportunities, and changes to legislation. An elected council member also represents the partnership on the Thames Regional Flood and Coastal Committee (RFCC).

RFCCs were established by the Environment Agency under the Act to bring together independent members and those appointed by Local Authorities for three purposes:

- To ensure coherent plans are in place for identifying, communicating, and managing flood risk across catchments.
- To encourage efficient, targeted, and risk-based in flood risk management that represents value for money and benefits local communities.
- To provide a link between the Environment Agency, LLFAs, and other relevant risk authorities to share and widen the knowledge base.

Hillingdon is within the Thames region and is represented on the **Thames RFCC**. Main committee and sub-committee meetings are held quarterly where partners can discuss and update on flood schemes. Importantly, the Thames RFCC also decides on the Environment Agency funding allocations for projects (including local levies).

More information on the Thames RFCC can be found [here](#).

The **[Crane Valley Partnership \(CVP\)](#)** is an association of charities, community groups, councils, businesses and government agencies working in the River Crane catchment area. Hillingdon Council is a landowner within the Crane Valley catchment and so is involved in the Core Strategic Group, supporting the broader Project Delivery group working on various projects within the catchment. The CVP works on restoration of the River Crane, conserving surrounding habitats and improving public access for the benefit of nearby communities.

The **London Drainage Engineers Group (LoDEG)** is an organisation representing the interests of those within London Councils with highway drainage and flood risk responsibilities. Meetings are held quarterly and attended by LLFAs, the Environment Agency, Thames Water Utilities Limited, TfL and Thames Flood Advisors among others. The meetings provide an opportunity for sharing flood risk management practice and enable collaboration and potential resolution of issues between relevant RMA's.

3.3 Environment Agency

The Environment Agency is the national flood risk authority for the UK. Main rivers, as designated by the Environment Agency, are a statutory type of watercourse and are under their regulatory control. They have permissive powers to carry out maintenance on main rivers and is responsible for ensuring that the riparian owner carries out their duties on a main river. Importantly, there are statutory enforcement powers allowing the Environment Agency to ensure main rivers are unobstructed and free flowing. They also have overview of all sources of flooding and coastal erosion as defined under the Act. The map of the designated main rivers can be viewed [here](#).

Further general Environment Agency responsibilities on flood risk management are:

- Delivering flood risk warnings.
- Producing maps for flood risk and providing data.
- Providing consent for, and enforcement of, works near or within main rivers.
- Producing guidance on Flood Risk Management Plans (FRMPs).
- Supporting other RMAs in delivering projects by providing resources and allocating government funding.

3.4 Thames Water

Thames Water Utilities Limited ('Thames Water') is the sewerage provider for Hillingdon. Thames Water has responsibility for the management of flood risk in relation to the drainage network. This includes managing any potential failures of their infrastructure that may cause flooding and ensuring sufficient maintenance of public sewers is carried out to reduce the risk of flooding from sewers. Thames Water is also a supplier of clean water in Hillingdon, along with Affinity Water. Clean water supply has the potential to be a source of flood risk from burst water mains, but this is outside the scope of the Strategy.

Leaks can be reported to the appropriate water supplier. The Water UK website can be used to [find the water supplier at specific locations](#).

3.5 Category One Responders

Category One responders have responsibilities under the [Civil Contingencies Act \(2004\)](#) when a major flooding incident is declared. They are directly involved in the management and delivery of the response. Category One responders in Hillingdon include:

- Hillingdon Council
- Emergency Services
- Environment Agency

Depending on the circumstances of the incident, other organisations may be involved in the response to the incident. Hillingdon Council is required to produce a Multi-Agency Flood Plan (MAFP), owned and maintained by the Emergency Planning Team. The MAFP outlines the delivery of the emergency response and co-ordinates the actions of responding agencies.

3.6 Highways

The responsibility for the drainage on highways depends on their ownership and management, which is outlined below:

Highway drainage and asset management	Risk Management Authority		
	Transport for London	National Highways	Hillingdon Council
Red routes	✓		
Motorways		✓	
Other adopted highways			✓

National Highways is the national organisation charged with operating, maintaining, and improving England's motorways and major A roads. The M4 and M40 runs through parts of Hillingdon, and form sections of the strategic road network that National Highways manages.

Transport for London (TfL) manages a network of major roads in the capital, referred to as red routes, which carry up to 30% of London's traffic. A map of red routes can be found on the [TfL website](#). In Hillingdon the roads that TfL are responsible for are the A4, A30, A40, A312, A437, and West End Road (A4180).

Hillingdon Council manages the majority of local roads that are known as adopted highways which incorporate a large drainage network some of which is within the remit of Thames Water.

There are some local roads that are not adopted highway and outside the control of the Council. Responsibility for these roads varies and depends on covenants and legal agreements.

3.7 Landowners

Landowners are responsible for the drainage on, and from, their land and property and should implement measures to prevent them from flooding. Any measures that are put in place should not increase the flood risk to surrounding land and property.

Private landowners with land or property next to a river, stream or ditch have responsibilities as 'riparian landowners'. Water must be able to flow without obstruction, pollution or diversion that may affect the rights of others. Private landowners have a duty to keep any structures, such as culverts or trash screens, free of debris. If private landowners have flood defences on their land, communication with the relevant risk authority about maintenance is important as they may play a significant role in flood protection.

Heathrow Airport is in the south of Hillingdon and covers over 1000 hectares. This makes Heathrow Airport Holdings Limited, which owns and runs the airport, a major landowner within

Hillingdon and responsible for drainage and flood risk management of a significant area of Hillingdon.

3.8 Theme Actions: Roles and Responsibilities

Objective	Improve the collaboration of Risk Management Authorities, and understanding of roles and responsibilities, to manage flood risk effectively
Action B1	Host quarterly meetings of a flood group for internal Council departments to share relevant updates for flood risk, discuss projects and potential opportunities for collaboration.
Action B2	Host quarterly meetings with external bodies, Thames Water and Environment Agency to discuss ongoing work, changing flood risk, investigations, and opportunities for collaborative working.
Action B3	Provide support to communities through flood action groups (FLAGs) to ensure flood risk at a local level is understood and preparedness is in place.
Action B4	To work with the Council’s emergency response unit to ensure that access to forecasting and warning is up to date and fit for purpose.
Action B5	To work with Thames Water and the Environment Agency to secure a list of Hillingdon specific actions to be hosted on the Council website alongside the Strategy.
Action B6	To ensure flood risk assets are maintained appropriately, effectively, and routinely.

4 OPPORTUNITIES AND PROJECTS

4.1 Managing flood risk sustainably

With future changes to the climate, there will be a greater risk of flooding as a result of more frequent and more intense periods of rainfall. Combined with this is a range of problems that are already present. For example, large scale loss of gardens and an increase in hardstanding

results in a reduction of space for water to be stored in a time of flood. The drainage network, as throughout London, is ageing and has constrained capacity that struggles to cope with the frequency of the intense rainfalls.

Carefully located and planned flood risk projects can provide considerable flood attenuation benefits. In addition, there are opportunities to reconsider where flood water can be stored in a time of flood, for example through the use of open space land. Identifying opportunities and projects are essential to facilitating a positive response to the growing risk of flooding.

Flood risk management in Hillingdon should aim to:

- Reduce risk in areas at greatest risk of flooding to ensure investment is used effectively
- Use sustainable drainage systems (SuDS) and natural flood management (NFM) where possible
- Share knowledge on flood risk and what work is being undertaken with the public, as to how they can be involved and protect themselves, property and business
- Work with partners to provide a collective response to flood risk management

Flood alleviation schemes should have multiple benefits: social and economic benefits of preventing property and businesses from flooding is generally accepted, but clever approaches can secure significant environmental benefits too such as opportunities for greater biodiversity.

Sustainable drainage systems (SuDS) are a method of water management that can be deployed to reduce flood risk. The purpose of a SuDS is to manage runoff as close to its source as possible to mimic natural drainage. This promotes infiltration and the attenuation of water to reduce the subsequent load on sewer systems.

[The SusDrain website](#) provides further information and explanations of the different types of SuDS, along with diagrams and images.

Further information on SuDS, including their benefits, can be found on the [Local Government website](#).

Natural flood management (NFM) is the use of natural processes to manage the risks from flooding; both NFM and SuDS seek to reduce flood risk by achieving drainage rates closer to the natural state, but NFM takes a wider approach with fewer engineering interventions than SuDS and is more commonly associated with managing fluvial flooding than surface water flood risk. Getting away from hard engineering, towards more natural methods of flood risk management, also allows for more interventions in a catchment.

4.2 Funding

The Department for Environment, Food and Rural Affairs (DEFRA) is a major source of funding for LLFAs to carry out projects through its Flood and Coastal Erosion Risk Management (FCERM) Grant in Aid (GiA) fund. The LLFA can also apply for Local Levy funding. This is managed by the

Thames RFCC and raised through a levy on Local Authorities, and is supported by the Environment Agency.

Funding can be one of the primary barriers to the development and delivery of flood management projects which means that funding from third parties, or partnership funding, can be an important additional source. This could be from community groups, charity organisations or from land or property owners involved in a scheme, or partners such as Thames Water.

4.3 What has been done

Hillingdon Council has undertaken a variety of projects, working with an array of partners, to alleviate flood risk.

The following 'project sheets' provide more detail on those most recently completed and relate to:

- Bessingby Park, Ruislip
- Cannon Brook and Mad Bess Brook, Ickenham
- Eastcote Town Centre, Eastcote
- Elephant and Court Park, Hillingdon
- 'Green Blue You', Hayes
- Park Wood Natural Flood Management, Ruislip

Other risk authorities have also undertaken extensive work in the borough. The Council is working with these partners to provide similar detail to those provided subsequently to allow all the information to be stored in one place.



Bessingby Park Flood Alleviation Scheme

Bessingby Park, Ruislip, HA4 9BU

Autumn 2022

Bessingby Park and adjacent properties have flooded on multiple occasions in the past few years. This flooding was attributed to the impacts of climate change and lack of capacity in the sewers. Several issues were identified within the Thames Water network, including a blockage and partial collapse of the surface water sewer in the southeast of Bessingby Park.

The project used principles of Natural Flood Management (NFM) and Sustainable Drainage Systems (SuDS).

The scheme provided approximately 500 m³ of capacity for retaining water during flood events in two basins. The basins were fringed with wildflowers and other planting to create a biodiverse habitat.

The project was delivered with funding from the Mayor of London's Grow Back Greener Fund and Thames Water.



Bessingby Park Basins

Photos taken prior to planting but showing the newly created basins



Cannon Brook and Mad Bess Brook Flood Alleviation Scheme

Cannon Brook Catchment

2021 – 2024

Residents living near the River Pinn in Ruislip have suffered many flood events in recent years, notably in 2016.

The River Pinn is prone to fast, flash flooding and numerous surface water outfalls drain directly into it, causing it to burst its banks in times of high rainfall. Invasive species which damage the ecological health of the riverbanks are also an issue.

The London Borough of Hillingdon partnered with Thames 21 on a two-year project which aimed to engage the community, reduce flood risk, and increase biodiversity.

Sections of the Cannon Brook, a Pinn tributary, was restored to increase water storage on the floodplain and slow the flow.

This project is part of a wider package of works around the Cannon Brook and Mas Bess Brook catchment.

Alongside the interventions on the watercourses, property flood resilience (PFR) measures have also been provided to the most at risk homes and further interventions are planned in 2024.

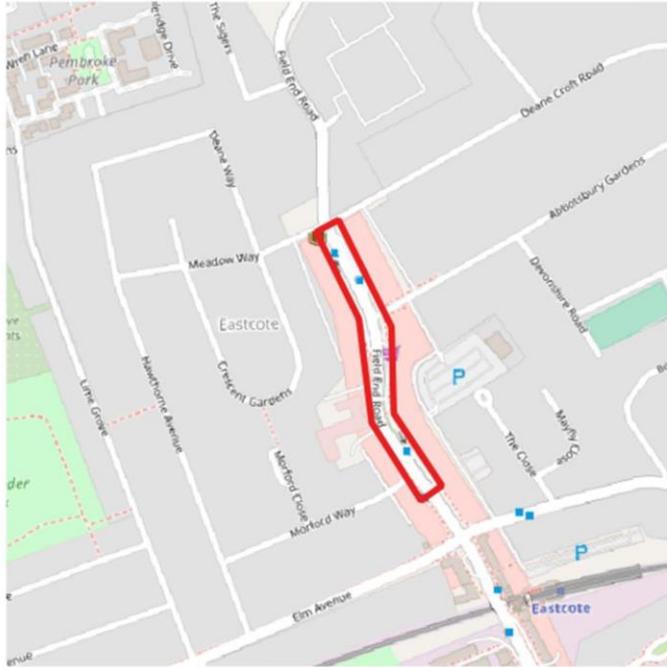


Increasing capacity on Cannon Brook

Source: Thames 21.



Eastcote Town Centre Raingardens



Eastcote Raingardens

Source: Landscape Institute

Eastcote Town Centre, Pinner, UB3 4EW

Summer 2019

Several raingardens were designed and implemented as part of the Eastcote Town Centre improvement and the London Strategic Sustainable Drainage Systems (SuDS) Pilot.

The aim of the scheme was to provide flood alleviation and improve amenity in an urban area. Residents and business in Eastcote Town Centre have suffered from frequent surface water flooding in the past when the sewer systems become overwhelmed in high intensity rainfall events.

Approximately 50 m³ of surface water storage was provided through the raingardens which were planted with shrubs, perennials, bulbs, and ornamental grasses.

The raingardens have also provided an opportunity for education, with school trips organised to view the raingardens in action.

The raingardens represent how above ground drainage solutions can be established in an urban area. They have secondary functions as a benefit to wildlife and as an attractive feature within an urban centre.



Elephant Park and Court Park Flood Alleviation Scheme



Elephant Park, Uxbridge, UB10 9AT

Court Park, Uxbridge, UB10 9JX

Summer 2022

A suite of measures was proposed to reduce the risk of surface water flooding to residential properties in Hillingdon with the secondary benefit of creating a more biodiverse space.

Modelling indicates that 54 houses were better protected from flooding due to these two schemes, which was supported with funding from the Environment Agency.

In Elephant Park, a meandering swale of approximately 200 m in length was constructed. To do this, 1,000 m³ had to be excavated but all of it was repurposed on site to create mounds. Seeding and wildflower planting was undertaken on these mounds. A successful community planting day for the swales was organised by the Green Spaces Team.

In Court Park, a range of features were built. These included a new swale, two bunds and two ponds. Similarly, to Elephant Park, this scheme was designed to increase capacity of water outside of the sewer systems.

These are examples of a more creative use of open space to achieve flood risk and biodiversity benefits whilst retaining the recreational purposes of the parks.

Importantly, they show that flood risk projects don't need to be hard engineered costly schemes.

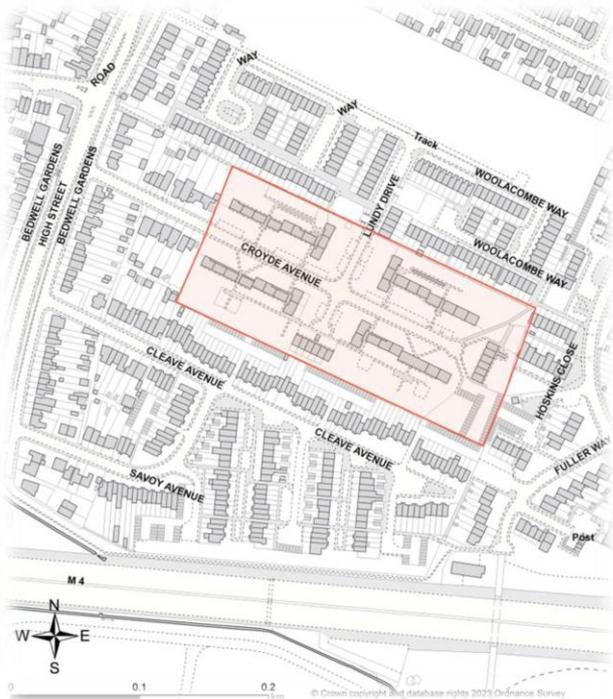


(above) A swale on a naturalised path that will become a significant biodiverse feature when planting matures

(below) a holding pond to store excess water at a low part of the park



Green Blue You Hayes



Croyde Avenue Estate, Hayes, UB3 4EW

2021 - 2024

Groundwork London is implementing this GLA-funded project in partnership with the London Borough of Hillingdon, which is due to complete in March 2024. The project is focused on 6 blocks of the Croyde Avenue Estate.

Green Blue You aims to reduce flood risk, alleviate pollution to water courses, improve and create green (and blue) habitats. The project has worked with residents to create a more biodiverse estate. It has also provided opportunities to volunteer and learn in the green skills space. The neighbourhood will benefit from new sustainable drainage, new informal play features and improved green spaces through wildlife enhancements.

The London Borough of Hillingdon are currently developing Sustainable Urban Drainage Systems (SuDS) around the catchment with funding from the Environment Agency. These will be delivered over coming years.



Green Blue You Visualisation

Source: Groundwork London

Park Wood

Natural Flood Management Phase 1



Park Wood (SSSI), Ruislip, HA4 7XT

2018 – 2021

This project was one of four community scale NFM pilots using funding from Department for Environment, Food and Rural Affairs (DEFRA). It was delivered in partnership by Thames21, the London Borough of Hillingdon and the local community including the Ruislip Woods Management Advisory Group (RWMAG) and the North Ruislip Flood Action Group (NRFLAG). The project aim was to reduce the risk of flooding to downstream properties, such as those along Park Avenue and Broadwood Avenue.

The works involved the installation of at least 40 leaky dams in the wood, which is a designated Site of Special Scientific Interest (SSSI) and a National Nature Reserve. Leaky dams mimic the natural obstruction caused by trees or branches falling into rivers. They work to slow the flow of water during periods of heavy rainfall. They also reduce soil erosion which helps to improve water quality downstream.



Leaky dams in Park Wood (SSSI)

Source: NRFLAG (above) and London Borough of Hillingdon (right).

4.4 What is being done

In addition to work already completed by the Council, there are a number of projects currently being actively investigated. These projects are in different stages and will be reported on annually and added to as more projects come forward.

4.4.1 Northwood: Joel Street Ditch Flood Alleviation Scheme

Flood modelling and options evaluation have been undertaken for the Joel Street Ditch catchment with the aim of identifying opportunities for SuDS to address recent surface and fluvial flooding from the Joel Street Ditch. The results of this modelling are now being explored by the Council to inform further work with the Environment Agency on possible solutions.

4.4.2 South Ruislip: Spider Park

The Rewilding Spider Park project has involved a number of stages providing multiple and various benefits. 8000 tree whips have been planted, areas of grass are left uncut and managed as hay meadow, pond restoration has taken place and a new swale created, all as part of biodiversity enhancement completed in March 2023. A feasibility study looking at flood management opportunities in the park was completed in September 2023. This has informed the next stages of the project which would involve the progression of river restoration works on the Yeading Brook.

4.4.3 Ruislip: Brook Drive SuDS

An investigation and assessment of the opportunities for flood risk measures on Brook Drive were carried out in 2020. Following this, Hillingdon Council submitted a successful bid for funding from the Thames Water Surface Water Management Programme. Workshops were held with the community to establish priorities for the project. A concept design has been produced for the first phase of the project, which is to implement raingardens on Kings College Road, upstream of Brook Drive. The raingardens would store surface water and reduce the volume of water entering the sewer system. Construction of this project is planned for 2024.

4.4.4 Hayes End: Kingshill Avenue flood alleviation project investigation

Outputs from the Hillingdon Catchment Plan have identified the Hayes End and Kingshill Avenue catchment as having a high number of properties at risk of surface water flooding. The catchment is served by a Thames Water surface water sewer network that discharges into a tributary of the Yeading Brook. There have been historic issues with surface water flooding; however, it is unclear how the surface water sewer network plays a role in this.

In addition, it is unclear what the role of downstream restrictions in the ordinary watercourse and main river network has on the risk of flooding. To better understand the integrated flooding, the London Borough of Hillingdon will be undertaking a feasibility study to identify opportunities for flood alleviation.

This study is funded by the Environment Agency

4.4.5 Pinkwell: Frogs Ditch Catchment

The Frogs Ditch is a main river in the south of the borough. It is a mix of open channel and culverted sections that ultimately discharge into the River Crane that forms the eastern border of the borough.

Modelling undertaken indicates up to 278 properties within the catchment are affected by flooding, 74 of which from an upstream flow route at Pinkwell Park to the Frogs Ditch. Other areas of note include the M4 Motorway and Cranford Park at risk of flooding.

Climate change projections indicate an increase in rainfall intensity over the coming years which is expected to increase the frequency at which properties in the catchment flood.

The Council has commenced work on a proposal to be put to the Environment Agency to secure further funding for a flood alleviation scheme within Pinkwell Park. If approved, a detailed scheme would then be drawn up with a project to follow, potentially in 2025.

4.5 Theme Actions: Opportunities and Projects

Objective	Identify and implement opportunities for flood risk management
Action C1	In collaboration with other internal council departments and Risk Management Authorities, maintain a list of funding opportunities. Use this to identify and secure appropriate funding for flood risk management schemes within the borough.
Action C2	Maintain mapping showing where flood risk management projects are being undertaken, opportunities have been identified, and include priority areas based on historic flood events and risk analysis.
Action C3	Support other internal council departments in their delivery of flood management schemes.
Action C4	Use flood incident information along with identified priority areas to inform the location and delivery of targeted schemes. Secure additional funding for delivery of flood alleviation schemes.
Action C5	Ensure that flood risk opportunities and projects are reflected in the Council's Climate Change Adaptation plans.

5 NEW DEVELOPMENT AND PLANNING

5.1 Planning policy

Planning policy has an important role to play in flood risk management in terms of ensuring development is not at risk of flooding, that it does not increase flood risk elsewhere and also contributes to managing flood risk.

5.1.1 Strategic Flood Risk Assessment

The [Flood Risk and Coastal Change Planning Practice Guidance \(PPG\)](#) requires Local Planning Authorities (LPAs) to apply a risk-based approach to understand and manage flood risk from all sources. As part of this, LPAs are required to produce Strategic Flood Risk Assessments (SFRAs). The purpose of an SFRA is to assess the current and future risk to an area from flooding from all sources, taking account of climate change and the impact of land use and development changes. The SFRA provides the evidence base for planning decisions related to flood risk.

5.2 Development and SuDS

Planning applications (where appropriate) are required to demonstrate the use of SuDS in accordance with a number of policies:

- [National Planning Policy Framework \(Paragraphs 159-169\)](#)
- [Flood Risk and Coastal Change Planning Practice Guidance](#)
- [London Plan Policies SI 12 and 13](#)
- [Non-statutory Technical Standards for Sustainable Drainage Systems](#)
- [Hillingdon Local Plan Policies EM 1, EM 6, DMEI 9 and DMEI 10](#)

The Lead Local Flood Authority (LLFA) has a statutory duty to review the proposed drainage elements of major planning applications under the [Flood and Water Management Act \(2010\) \(FWMA\)](#). Major planning applications are defined as:

- Developments of 10 or more dwellings
- A site area of 0.5 ha or greater
- Buildings with a floor space of 1,000m² or greater

The LLFA will provide comments on the proposed surface water drainage strategy of the development along with proposed measures for the management of flood risk to the site. The Environment Agency will also be consulted with respect to any development within 8m of a main river or in Flood Zone 3 (a or b).

The LLFA, as part of the planning application process, will review:

- If the drainage hierarchy set out in the [London Plan \(2021\)](#) is being adhered to and that the most sustainable drainage features possible have been proposed.

- If the proposed runoff rates are equal to or lower than greenfield runoff rates, or as close as reasonably practical with sufficient justification.
- If sufficient calculations supporting greenfield, existing and proposed runoff rates for 1 in 1 year (100% chance of occurrence each year), 1 in 30 year (3.3% chance of occurrence each year) and 1 in 100 year (1% chance of occurrence each year) rainfall events are provided, with an [appropriate climate change allowance](#).
- If the proposed attenuation storage volume meets or exceeds the required attenuation storage volume for the site.
- If maintenance tasks of proposed SuDS (including actions and frequencies) and a maintenance provider have been stated.

All of this information, along with sufficient supporting evidence, should be submitted in a formal planning application made to the local planning authority.

The applicant is also required to complete and submit the [Hillingdon Sustainable Drainage Proforma](#) and, dependent on the size of the development and Flood Zone it is in, a flood risk assessment. More information on the requirements for flood risk assessments can be found [here](#).

5.2.1 Schedule 3 and SuDS Approval Body

In January 2023 the government announced the implementation of Schedule 3 of the [FWMA](#), expected to come into effect in England during 2024. Schedule 3 will require the use of SuDS within new developments over 100m² to be formally approved by the SuDS Approval Body (SAB). This is a separate consenting regime outside of the planning permission process.

The SAB will have a similar role to the local planning authority, but solely for the drainage arrangements of a new development. Drainage will therefore be a consideration for both the local planning authority and the SAB. There is limited guidance at present as to the exact implications for the SAB but it will invariably be a significant change in how SuDS are considered within new development.

The Strategy will be updated in due course once there is clarity over the SAB role.

5.2.2 Biodiversity Net Gain

Biodiversity Net Gain (BNG) is an approach for developing land whilst contributing to the recovery of nature. BNG refers to ensuring the natural environment is in better condition than prior to the development by creating or enhancing habitats in association with development. BNG can be achieved on-site, off-site or through a combination of both. Under the [Environment Act 2021](#), all planning permissions granted in England, with some exemptions, will have to deliver at least 10% BNG from January 2024. BNG will be measured by DEFRA's metric and further information on this can be found on [the government website](#). [Hillingdon Local Plan Policy EM7](#) sets out how Hillingdon's biodiversity will be preserved and enhanced.

Further information on BNG can be found on the [Local Government Association website](#).

The National Planning Policy Framework requires Local Planning Authorities to consider green infrastructure (GI) in local plans and in new development. GI refers to a network of multi-functional green space, which deliver environmental and amenity benefits for communities. It can refer to a wide range of features, for example parks, playing fields, street trees and green roofs. The [Green Infrastructure Standards](#) have been developed by Natural England to help LPAs and developers meet the requirement to consider GI. The **Urban Greening Factor** is a tool to improve the provision of GI and increase the level of greening in urban environments. It is applied to major developments and sets a target score for the proportion of GI within a development site.

5.3 Theme Actions: New Development and Planning

Objective	Ensure that development within the London Borough of Hillingdon accounts for and mitigates flood risk with the aspiration to see a net reduction.
Action D1	Produce and maintain guidance for the Planning department on flood risk management, requirements for drainage strategies and all council policy associated with flood risk.
Action D2	Develop and maintain up to date guidance on the SuDS Approving Body for relevant internal Council departments. Ensure the relevant departments have awareness and understanding of the implications of implementation of Schedule 3.
Action D3	Ensure plans and planning decisions are informed by up to date flood risk information and developments are designed and located to minimise the risk of flooding.
Action D4	Ensure developments with an impact on flood risk assets are appropriately assessed with long term maintenance and management appropriately secured.
Action D5	Require developments to demonstrate that sustainable drainage systems have been implemented, where possible, for managing runoff.
Action D6	Ensure all guidance and standing advice on flood risk and planning is kept up to date and accessible.
Action D7	Undertake annual training for the Local Planning Authority on development and flood risk.

6 LOCAL COMMUNITIES AND FLOODING

6.1 How to reduce local flood risk

Managing flood risk is not the sole responsibility of the statutory authorities. Large scale interventions, projects or improvements to infrastructure can only generally be carried out by the statutory authorities but local action forms a vital part in the collective goal of managing flood risk effectively.

What residents do within their own properties can combine to make a significant difference. For example, in recent years, the large scale replacement of gardens with impermeable or hard surfacing has resulted in quicker runoff to the local drainage networks. The consequence is that more water is reaching the drainage network quicker than it can be managed resulting in increased levels of flooding.

It is important for residents to consider their use of external areas of property. Extending impermeable surfaces, such as driveways and paved gardens or even through the use of plastic grass can all contribute to increased speed of water runoff. Wherever possible, property owners should consider swapping out areas of impermeable cover for those which will allow water to infiltrate. Alternatively, options for storing rainwater, such as water butts, could also be considered as a way of slowing the speed at which water reaches the drainage network.

Along with actions for reducing overall runoff, there are measures that can be put in place specifically to protect properties from flooding. These are often termed **Property Flood Resilience (PFR) measures**. Examples include non-return valves on pipes to stop water flowing back into the property, the fitting of anti-flood airbricks or these of flood gates and barriers that can be erected prior to a possible flood event. The [National Flood Forum](#) website sets out methods for protecting property along with the typical costs involved. [The Blue Pages](#) website provides further information on property-level protection measures along with the standards and accreditation available for such measures. The Council strongly recommends residents check the PFR certifications before employing any flood protection devices.

It is not possible to completely remove the risk of flooding, but it is possible to mitigate the risk through certain considerations and mitigation measures.

6.2 How to report flooding

Reporting of flooding incidents is important so that a record can be kept, and appropriate action(s) are taken. Reporting flooding also makes it easier to establish locations where there may be a recurrent issue and helps with the prioritisation of solutions. Different types of flooding are the responsibility of different authorities. *Section 2.1* provides further information on this. The Council has committed to providing a more efficient way of reporting flooding and this will be developed in 2024.

How to report a flood	
For surface water flooding, groundwater and ordinary watercourses	<p>Hillingdon LLFA</p> <p>01895 556000 / 01895 250111 (after 5pm)</p> <p>Flood reporting tool</p>
For sewer flooding and blocked sewers	<p>Thames Water</p> <p>0800 316 9800</p> <p>Thames Water online reporting tool</p>
For flooding of main rivers or from the sea	<p>Environment Agency</p> <p>0800 80 70 60 (24/7)</p>
For blocked drains or gullies on highways managed by Hillingdon Council	<p>Hillingdon Highways</p> <p>Blocked gully reporting tool</p>
For blocked drains or gullies on highways managed by Transport for London	<p>Transport for London</p> <p>Street care reporting tool</p>
For blocked private drains or flooding from private drains	<p>Landowner / property owner</p>

6.3 Actions before, during, and after a flood

Improved community and individual knowledge of their risk of flooding improves awareness and enables preparedness. Residents and property owners can check the long-term risk of their area [here](#). In the event of a possible flood, residents can check the immediate risk to their property [here](#).

The Environment Agency can also be contacted for this information at **0345 988 1188** or by textphone **0345 602 6340**. The advice given by the Environment Agency on what actions should be taken before, during and after a flood are summarised below along with when actions should be triggered, i.e. linked to the types of flood warnings.

Before

- Prepare an emergency plan and share with anyone living in your property.
- Have an emergency kit ready to take with you.
- Find out how to turn off your gas, electricity and water supplies.
- Ensure insurance is in place
- Take detailed photos of valuables and property before flooding occurs for insurance purposes.

During

- Turn off gas, electric and water supplies.
- Avoid entering flood water, particularly if fast flowing or deep water.
- Do not drive through flood waters.
- Move valuables and furniture, if possible, out of reach of floodwaters. Vehicles should also be moved to higher places.
- Report the flooding incident to the appropriate authority so that any necessary action can be taken during the event.

After

- Don't return to flooded property until it has been declared safe to do so.
- Don't turn on utilities until these have also been checked.
- Take photos of damage and anything to be disposed of and contact the insurance provider.
- Report the flooding incident to the appropriate authority.

Would you know what to do in a flood?



**FLOOD
ALERT**

PREPARE

- Prepare a bag that includes medicines and insurance documents
- Visit www.gov.uk/check-flooding



**FLOOD
WARNING**

ACT

- Turn off gas, water and electricity
- Move things upstairs or to safety
- Move family, pets and car to safety



**SEVERE
FLOOD
WARNING**

SURVIVE

- Call 999 if in immediate danger
- Follow advice from emergency services
- Keep yourself and your family safe

Visit check-for-flooding.service.gov.uk/plan-ahead-for-flooding

#PrepareActSurvive

6.4 Community groups

Communities have an important role to play in local flood risk management. Local knowledge and understanding of flood risk and past flooding events is an important resource for the Council and can make flood risk management decisions and flood alleviation schemes more informed and effective.

Working as a group enables communities to collaborate with agencies and authorities that manage flood risk to address any concerns and tackle the issues affecting their local area.

One example of this can be through Flood Action Groups, made up of a core of local people acting as representatives for their wider community. Flood Action Groups are community-led and can be set up by any group of volunteers who wish to work together to raise and manage issues around flood risk. The [National Flood Forum website](#) has further information and guidance for [how to set up and Flood Action Group](#).

6.5 Theme Actions: Local Communities and Flooding

Objective	Engage with communities to develop the awareness of flood risk in local areas and improve their resilience
Action E1	Maintain a register of community groups that may be relevant to flood risk management, with the associated flood risk information, schemes and level of engagement. Provide information and support for community groups undertaking actions related to flood risk management.
Action E2	Undertake an engagement campaign alongside the annual review of the LFRMS to raise awareness of flood risk management and the roles that communities and residents can play.
Action E3	Attend appropriate community meetings along with other Risk Management Authorities to maintain regular contact with communities and support actions to address issues raised.
Action E4	Improve awareness and adoption of property level resilience measures for residents.
Action E5	Ensure lines of communication from Risk Management Authorities to residents during flooding events are clear and efficient.
Action E6	Keep information on flood alleviation schemes up to date and accurate for residents. Use appropriate communication and engagement channels to inform residents about project completion and successes.

APPENDIX A – ACTION PLAN

Sources of Flooding		Improve knowledge of flood risks in the London Borough of Hillingdon			
Ref	Action	Role	Partner	Timeframe	Process
A1	Maintain an up to date record of flood risk data ensuring this is available for others to use.	LLFA	Environment Agency	Ongoing	Check for changes in flood risk data, for example following national updates to modelling, and keep a timeline of the dates for updates (where known) to the datasets being used.
A2	Develop and maintain a method for sharing and recording flood reports with internal departments and external partners.	LLFA	Environment Agency Thames Water LBH Highways LBH Green Spaces National Rail TFL National Highways	Ongoing	Quarterly meetings with external partners Quarterly internal meetings with other key departments.
A3	Work with external partners to ensure their records of flooding events, including investigations, are available to the Council.	LLFA	Environment Agency Thames Water LBH Highways LBH Green Spaces National Rail TFL National Highways	Post flood event	Undertake post flood incident investigations in liaison with external partners.

A4	(a) Review the threshold criteria for flood investigations and (b) continue to carry out flood risk investigations when flooding reaches the Section 19 threshold.	LLFA		(a) Within one year (b) Post flood event	Review criteria for flood investigations Undertake investigations in accordance with approved criteria.
A5	Use updates to modelling, new information from feasibility studies, and reports to ensure flood risk information is kept relevant.	LLFA		Quarterly	Review flood incidents that have occurred. Review whether any Section 19 investigations have been carried out. Based on recent flooding history check threshold is appropriate and ensure it is being applied.
A6	Continue to use and develop innovative methods for capturing data on flood risk within the borough.	LLFA	Environment Agency Thames Water Community Groups	Ongoing	Review what data is currently being collected and monitored for flood risk, such as community reporting tools and sewer level monitors. Keep track of any new methods for monitoring identified by the Environment Agency, Met Office or that other Risk Management Authorities may be using or from research opportunities.
Working with Others		Improve the collaboration of Risk Management Authorities, and understanding of roles and responsibilities, to manage flood risk effectively			
Ref	Action	Role	Partner	Timeframe	Process
B1	Host quarterly meetings of a flood group for internal council departments to share relevant updates for flood risk, discuss projects and potential opportunities for collaboration.	LLFA	LBH Highways LBH Green Spaces LBH Housing (when appropriate)	Ongoing	Review attendance to flood group meetings. Identify any barriers to attendance. Review any feedback on meetings and any topics to be covered going forward.

B2	Host quarterly meetings with external bodies, Thames Water and Environment Agency to discuss ongoing work, changing flood risk, investigations, and opportunities for collaborative working.	LLFA	Thames Water Environment Agency	Ongoing	Review attendance to flood group meetings. Identify any barriers to attendance. Review any feedback on meetings and any topics to be covered going forwards.
B3	Provide support to communities through flood action groups (FLAGS) to ensure flood risk at a local level is understood and preparedness is in place.	LLFA	Community Groups	Ongoing	Provide guidance for FLAGS and engage quarterly to determine resource required and the assistance to be provided by the LLFA.
B4	To work with the Council's emergency response unit to ensure that access to forecasting and warning is up to date and fit for purpose.	LLFA	LBH Emergency Response Team	Annual	Review the information provided historically. Check the messaging of different Council teams and other Risk Management Authorities who might be putting information out to residents on flood risk management responsibilities.
B5	To work with Thames Water and the Environment Agency to secure a list of Hillingdon specific actions to be hosted on the Council website alongside the Strategy.	LLFA	Thames Water Environment Agency	Annual	Liaise with external partners to secure information on Hillingdon specific actions are hosted on the Council website alongside the LLFA actions i.e. within in this action plan.
B6	To ensure flood risk assets are maintained appropriately, effectively, and routinely.	LLFA	Environment Agency Thames Water LBH Highways LBH Green Spaces National Rail TFL National Highways		Secure information on maintenance and inspections from asset management bodies. Provide public guidance on the flood risk asset management regime and the roles and responsibility for the various authorities. Provide information on flood risk asset management regime where appropriate.

Opportunities and Projects		Identify and implement opportunities for flood risk management			
Ref	Action	Role	Partner	Timeframe	Process
C1	In collaboration with other internal council departments and Risk Management Authorities, maintain a list of funding opportunities. Use this to identify and secure appropriate funding for flood risk management schemes within the borough.	LLFA	Environment Agency Thames Water LBH Highways LBH Green Spaces National Rail TFL National Highways	Ongoing	Review what funding opportunities are known and used currently and update accordingly. Identify cross funding opportunities where appropriate, for example biodiversity net gain.
C2	Maintain mapping showing where flood risk management where projects are being undertaken, opportunities have been identified, and include priority areas based on flooding history.	LLFA	LBH GIS Team LBH Web Team	Ongoing	Review flood risk data and flood history to determine priority areas for identifying new projects.
C3	Support other internal council departments in their delivery of flood management schemes.	LLFA	LBH Green Spaces LBH Property Team LBH Housing LBH Highways	Ongoing	Establish current and future schemes being delivered by other departments. Update the mapping recording projects accordingly. Review what support is currently being provided and identify support that may be useful.
C4	Use flood incident information along with identified priority areas to inform the location and delivery of targeted schemes. Secure additional funding for delivery of flood alleviation schemes.	LLFA	Environment Agency Thames Water Funding streams	Ongoing	Continue to secure project funds to identify and deliver new projects in collaboration with communities and external partners.

C5	Ensure that flood risk opportunities and projects are reflected in the Council's Climate Change Adaptation plans.	LLFA		Ongoing	Check that flood alleviation schemes have been assessed against climate change targets and where improvements can be made.
New Development and Planning		Ensure that development within the London Borough of Hillingdon accounts for and mitigates flood risk			
Ref	Action	Role	Partner	Timeframe	Process
D1	Produce and maintain guidance for the Planning department on flood risk management, requirements for drainage strategies and all council policy associated with flood risk.	LLFA		Ongoing	Review what information is already available and use this to produce updated guidance. Undertake annual refresher training or when changes to flood risk policy are implemented.
D2	Develop and maintain up to date guidance on the SuDS Approving Body for relevant internal council departments. Ensure the relevant departments have awareness and understanding of the implications of implementation of Schedule 3.	LLFA		When Schedule 3 is to be implemented	Monitor the progress of implementing Schedule 3 of the Flood and Water Management Act 2010. Develop guidance and undertake internal training on the processes involved. Update the LFRMS to reflect the legislative requirements of Schedule 3 implementation when appropriate.
D3	Ensure plans and planning decisions are informed by up to date flood risk information and developments are designed and located to minimise the risk of flooding.	LLFA	Environment Agency	Ongoing	Check that the Planning Team are using the most current SFRA and applying current policy related to flood risk (such as the London Plan Policy SI 13 or Local Plan policy).

D4	Ensure developments with an impact on flood risk assets are appropriately assessed with long term maintenance and management appropriately secured.	LLFA	LBH Planning	Ongoing	Review planning applications and provide appropriate commentary and guidance to the Local Planning Authority.
D5	Require developments to demonstrate that sustainable drainage systems have been implemented, where possible, for managing runoff.	LLFA	LBH Planning	Ongoing	Review planning applications and provide appropriate commentary and guidance to the Local Planning Authority.
D6	Ensure all guidance and standing advice on flood risk and planning is kept up to date and accessible.	LLFA	Environment Agency	Ongoing	Review the standing advice in liaison with the Environment Agency and develop internal guidance to facilitate efficiencies within the planning function.
D7	Undertake annual training for Local Planning Authority on development and flood risk.	LLFA	Environment Agency	Annual	<p>Ensure training is given to planning department to ensure officers understand the latest position on planning and flood risk.</p> <p>Work with partners to secure training for flood risk sources not within the remit of the LLFA, i.e. the Environment Agency.</p>

Local Communities and Flooding		Engage with communities to develop the awareness of flood risk in local areas and improve their resilience			
Ref	Action	Role	Partner	Timeframe	Process
E1	Maintain a register of community groups that may be relevant to flood risk management, with the associated flood risk information, schemes and level of engagement. Provide information and support for community groups undertaking actions related to flood risk management.	LLFA	Community Groups	Ongoing	Liaise with the community engagement team to assess whether an up to date register of community groups is being used. Use this to compile a list of relevant groups. Provide commensurate levels of support and assistance to groups that are associated with priority flood risk areas.
E2	Undertake an engagement campaign alongside the annual review of the LFRMS to raise awareness of flood risk management and the roles that communities and residents can play.	LLFA	Engagement Team	Annual	Use the production of the annual status report of the LFRMS to raise awareness of flood risk, provide an update on the work of the LLFA and external partners, and publish information on what residents can do 'before, during and after flooding'.
E3	Attend appropriate community meetings along with other Risk Management Authorities to maintain regular contact with communities and support actions to address issues raised.	LLFA	Community Groups	Ongoing	Support and attend community meetings as necessary. Use influence with external authorities to secure their assistance with community groups where appropriate.
E4	Improve awareness and adoption of property level resilience measures for residents.	LLFA	Community Groups	Ongoing	Assess what information is currently provided to residents and in what format. Evaluate the effectiveness of these

					practices and where necessary change and improve how that information is delivered.
E5	Ensure lines of communication from Risk Management Authorities to residents during flooding events are clear and efficient.	LLFA	Environment Agency Thames Water	Ongoing	Review how information on live flood events is delivered to residents and assess whether efficiencies or improvements could be made to this.
E6	Keep information on flood alleviation schemes up to date and accurate for residents. Use appropriate communication and engagement channels to inform residents about project completion and successes.	LLFA	Engagement Teams	Ongoing	Keep track of where information on flood management schemes is published and, when appropriate, update this.

APPENDIX B – STRATEGIC ENVIRONMENTAL ASSESSMENT

Strategic Environmental Assessment – Screening Assessment

APPENDIX C – HABITATS REGULATIONS ASSESSMENT

Habitats Regulations Assessment – Screening Assessment

APPENDIX D – LEGISLATION

The Local Flood Risk Management Strategy (LFRMS) sits within a wider legislative context at an international, national, regional and local level. The framework of legislation and policy provides organisations operating at different levels (international to local) with the applicable aims and targets for flood risk management.

International	
EU Water Framework Directive (2000)	The EU Water Framework Directive (WFD), published in 2000, makes it a requirement for Member States of the EU to improve and maintain the state of all waters, including surface waters and groundwater. All waters are to achieve a “good” ecological status by 2015 or, at the latest, by 2027. The WFD request that water management plans are developed using a river basin approach. The WFD was adopted into UK law in 2003 and will become part of new UK law following the UK’s departure from the European Union.
EU Floods Directive (2007)	The EU Floods Directive dictates how Member States should approach the flood risk management of all types of floods. A three-stage process was to be followed. For the initial cycle, by 2011 Member States had to produce Preliminary Flood Risk Assessments (PFRAs) to identify areas where water courses and coast lines are potentially at risk of flooding. By 2015, mapping of flood risk areas showing the extent, assets and number or inhabitants at risk were created. By 2015, Flood Risk Management Plans (FRMPs) for areas at high risk of flooding were produced, including measures to reduce flood risk. Updated FRMPs were produced for 2021-2027. The EU Flood Directive was implemented in UK law through the Flood Risk Regulations (FRR) (2009) and will be a continuing law following the UK’s departure from the EU. The cycle restarted in 2016 and Hillingdon’s LLFA have been involved in updates since.
IPCC Climate Change Report (2021)	The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report aims to assess the physical science basis of climate change. The headlines from the 2021 report include predictions of +1.5°C temperature change in the next two decades and that climate change is presently affecting every populated region of the globe.
National	
Civil Contingencies Act (2004)	The Civil Contingencies Act is a legislative framework for civil protection in the UK that establishes the roles and responsibilities on organisations that play a role in preparing for and responding to emergencies. Under the Act, Local Authorities and the

	Environment Agency are Category 1 responders. Some of the Local Authority's duties include putting in place emergency plans, sharing and co-operating with other local responders to enhance efficiency.
The Pitt Review (2007)	Following the extreme flooding that took place in the summer of 2007 a comprehensive review led by Sir Michael Pitt, known as the Pitt Review, was commissioned by the UK Government. The Pitt Review provided 92 recommendations to improve flood risk management in England, notably that County Councils, large metropolitan boroughs, and Unitary Authorities should take the lead on the management of flood risk. The Pitt Review recommendations were accepted by the Government and initiated the creation of the FWMA.
Flood Risk Regulations (2009)	The FRR implements the EU Floods Directive in England. Flood risk management, as set out by the framework, requires the production of PFRAs, the identification of flood risk areas, mapping of such areas and FRMPs.
Flood and Water Management Act (2010)	The FWMA aims to provide better, more sustainable management of flood risk and coastal erosion along with improving the sustainability of water resources. The FWMA defines structures and responsibilities for managing flood risk, notably with the introduction of LLFAs which impart the role of managing local flood risk to County Councils, large metropolitan boroughs, and Unitary Authorities. The Environment Agency is appointed to hold the strategic overview role of all sources of flooding, in addition to managing the flood risk from main rivers and the sea. The FWMA also places a statutory duty on the Environment Agency to develop a NFCERMS for England, which all LFRMSs must align with.
Flood and Coastal Erosion Risk Management Policy (2020)	The FCERM Policy Statement reflects the government's long-term ambition to increase the resilience to flood and coastal erosion risk nationwide.
National Flood and Coastal Erosion Risk Management Strategy (2020) Flood and Coastal Erosion Risk Management Strategy Roadmap to 2026	The NFCERMS sets out a framework for RMAs involved in managing flood risk in order to increase the nation's flood resilience. The publication of the NFCERMS was followed by an initial 1-year action plan showing actions needed. In 2022 a roadmap was published containing longer-term, practical actions to 2026.
National Planning Policy Framework (2021, revised)	The National Planning Policy Framework (NPPF) sets out the planning policies to provide sustainable development and is published by the Department for Levelling Up, Housing and Communities (DLUHC). The NPPF provides guidance on developing

	Local Plans in line with national planning policies. These policies include avoiding and managing risks from flooding, in line with the role of LPAs to prepare local plans and to decide on planning application permissions. The NPPF is supported by Planning Practice Guidance (PPG), including the Flood Risk and Coastal Change PPG , which is revised as necessary.
Environment Act (2021)	The Environment Act is the UK’s new framework of environmental protection since departing from the EU. It is intended to provide legal regulations on nature protection, water quality, clean air and other environmental protections. The Environment Act provides the Government with powers to set new binding targets, including for air quality, water, biodiversity, and waste reduction, and also establishes a new environmental watchdog – the Office for Environmental Protection.
Flood risk management plans (part a) 2021-2027	The flood risk management plans (FRMPs) (2021-2027) were published by the Environment Agency and split into two parts. Part A is the national overview and provides the context of FRMPs in strategic flood risk management planning, information on flood risk management at a national level and national measures lead by the Environment Agency and Lead Local Flood Authorities (LLFAs).
Environmental Improvement Plan (2023)	The Environmental Improvement Plan (EIP) is the first revision of the 25 Year Environment Plan (25YEP) . The 25YEP was published by the UK government in 2018 and set out 10 goals to help the natural world: (1) clean air, (2) clean and plentiful water, (3) thriving plants and wildlife, (4) reducing the risks of harm from environmental hazards, (5) using resources from nature more sustainably and efficiently, (6) enhancing beauty, heritage and engagement with the natural environment, (7) mitigating and adapting to climate change, (8) minimising waste, (9) managing exposure to chemicals and (10) enhancing biosecurity. The EIP reinforces the 25YEP and sets out the plan to deliver the framework and vision previously set out.
Regional	
Mayor of London’s Climate Change Adaptation Strategy (2011)	This Mayor of London’s Climate Change Adaption Strategy sets out the framework for improving the quality of life in London and for protecting the natural environment. It provides an action plan for making London more sustainable by using three ‘pillars’: retrofitting London, greening London and cleaner air for London. The strategy presents the understanding of main climate change effects on London as well as analysing the effects on cross-sector issues including health, economy, and infrastructure. The strategy also provides a ‘roadmap to resilience’ outlining actions, with lead

	and partner organisations. Since then, the Greater London Authority (GLA) have also produced a London Environment Strategy (2018) .
London Regional Flood Risk Appraisal (2018)	The London Regional Flood Risk Appraisal (RFRA) provides an overview of all sources of flooding in London and addresses both its probability and consequences. The evidence of the London RFRA subsequently informs the London Plan and should inform local-level flood risk assessments and local plans.
London Sustainable Drainage Action Plan (2021)	The London Sustainable Drainage Action Plan addresses a specific need to promote the awareness, and the retrofitting, of sustainable drainage systems right across London. It contains a series of actions to make London’s drainage system work in a more natural way with the main focus on the retrofitting of sustainable drainage to existing buildings, land and infrastructure. Sector-specific sustainable drainage (SuDS) guidance has been developed as part of the London Sustainable Drainage Action Plan.
The London Plan (2021)	The London Plan is a general Strategic Development Strategy for London. Producing a Strategic Development Strategy is a requirement of the London Mayor established under GLA legislation. The London Plan establishes an integrated economic, environmental, transport and social framework for the development of London for the next 20-25 years.
Thames River Basin District Flood Risk Management Plan (2021-2027)	The Thames River Basin District Flood Risk Management Plan (FRMP) is Part B of the FRMPs published by the Environment Agency in 2022. It provides information on flood risk for the Thames river basin district and a summary of the aims and actions required to manage the risk.
Thames river basin district River Basin Management Plan (2022)	The aim of river basin management plans is to enhance nature and the natural water assets. The Thames river basin district River Basin Management Plan (RBMP) describes the framework used to protect and improve the quality of waters in the Thames river basin and is used by RMAs for making water management decisions within the Thames river basin. It also includes the local environmental objectives that RMAs use to make planning decisions and an assessment of the current condition of each water body, including the reasons why, if not, it is not in good condition.
Thames Estuary 2100 (2023)	The Thames Estuary 2100 (TE2100) Plan was first published in 2012. It was developed by the Environment Agency and provides strategic direction for managing flood risk in the Thames Estuary to the end of the century. The TE2100 plan is an adaptive strategy and is reviewed on an interim basis every five years and on a full

	<p>basis every ten years. The new and updated version of the plan was published in 2023. The plan considers different long-term options for managing tidal flood risk depending on changes in factors which determine the level of flood risk, including sea level rise.</p>
Local	
<p>Surface Water Management Plan (2014)</p>	<p>A SWMP is a plan produced by LLFAs that presents the surface water flood risk for an area and forms a strategy on how to manage this with local partners. A SWMP considers flooding from sewers, drains, groundwater, and surface runoff from land, small watercourses and ditches that occur as a result of heavy and / or prolonged rainfall. The SWMP also includes a long-term action plan to manage surface water flood risk which will influence land-use planning, emergency planning and future developments. SWMPs also aim to identify SuDS opportunities to manage surface water flood risk which contributes towards the WFD requirements.</p>
<p>Strategic Flood Risk Assessment (2015)</p>	<p>A SFRA is required by the NPPF and provides a strategic overview of all forms of flood risk within a designated area. A SFRA assesses the risk from all sources of flooding, the cumulative effect that development or changing land use could have, and the effect of climate change on the risk of flooding. A SFRA should also identify opportunities to reduce the causes and effects of flooding, including potential areas of land for flood risk management infrastructure. The SFRA provides guidance for the Local Plan, individual planning applications, future flood management, emergency planning and how to adapt to climate change.</p>
<p>Local Plan (Part 1 (2012) and Part 2 (2020))</p>	<p>Hillingdon Council’s Local Plan sets out policy and guidance to manage growth and guide development within Hillingdon. It is split into two parts. The Local Plan Part 1 sets out the overall level and broad locations of growth up to 2026. Part 1 was adopted in 2012. The Local Plan Part 2 comprises Development Management Policies, Site Allocations and Designations and the Policies Map. Part 2 was adopted in 2020 and delivers the detail of the strategic policies set out in the Local Plan Part 1. It addresses needs and opportunities in relation to housing, the economy, community facilities and infrastructure, as well as conserving and enhancing the natural and historic environment, mitigating, and adapting to climate change and achieving well designed places.</p>