# Royal Borough of Greenwich

# Local Flood Risk Management Strategy


ROYAL borough of GREENWICH

# Executive Summary

**The Royal Borough of Greenwich has produced an updated Local Flood Risk Management Strategy (LFRMS) to replace the previous LFRMS published in 2015. A LFRMS is a statutory document required under the Flood and Water Management Act 2010 (FWMA) and sets out how local flood risk will be managed by the council over the next six years.**

This LFRMS provides an overview of flood risk within the borough from all sources. This includes surface water, Main Rivers, tidal rivers, ordinary watercourses, groundwater, sewers and artificial sources such as canals. These risks are also demonstrated in maps provided in the Appendix of this strategy. The LFRMS also explains the roles and responsibilities of Risk Management Authorities (RMAs) and other key partners in relation to the different sources of flooding.

The LFRMS outlines how the council will manage flood risk in a sustainable way and build community resilience to flooding. This strategy highlights five key strategic objectives; each objective is accompanied by specific actions to aid their delivery. These are set out in that Action Plan (Appendix B). The five strategic objectives of this LFRMS are:

**a.** improve knowledge and understanding of flood risk within Royal Greenwich

**b.** maximise sustainability and biodiversity benefits to Royal Greenwich by taking a holistic approach to flood risk management through the use of natural flood management (NFM)

**c.** reduce the risk of flooding to the community in Royal Greenwich by delivering targeted flood alleviation schemes (FASs) and encouraging the use of sustainable drainage systems (SuDS)

**d.** investigate new funding opportunities available to develop flood risk management within Royal Greenwich

**e.** improve community awareness and preparedness of flood risk within the borough.

The LFRMS and associated Action Plan will be reviewed and updated annually to keep track of the progress made on each objective and reflect the most up-to-date knowledge on flood risk within the borough.

Alongside this document, a Strategic Environmental Assessment (SEA) (Appendix C) and a Habitats Regulations Assessment (HRA) (Appendix D) have been developed. These assess the impact the LFRMS may have on the environment by identifying local protected sites and environmental issues.

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# Figures and Tables



# Acronyms and Abbreviations

**Table 1: Acronyms and Abbreviations**

| Abbreviation | Definition |
|---|---|
| **CFMP** | Catchment Flood Management Plan |
| **EA** | Environment Agency |
| **FAS** | Flood Alleviation Scheme |
| **FCERM** | Flood and Coastal Erosion Risk Management |
| **FRMP** | Flood Risk Management Plan |
| **FRR** | Flood Risk Regulations |
| **FWMA** | Flood and Water Management Act |
| **GiA** | Grant in Aid |
| **GLA** | Greater London Authority |
| **HRA** | Habitats Regulations Assessment |
| **IPPC** | Intergovernmental Panel on Climate Change |
| **LCIV** | London Collective Investment Vehicle |
| **LFRMS** | Local Flood Risk Management Strategy |
| **LLFA** | Lead Local Flood Authority |
| **LoDEG** | London Drainage Engineers Group |
| **MAFP** | Multi-Agency Flood Plan |
| **NFCERMS** | National Flood and Coastal Erosion Risk Management Strategy |
| **NFM** | Natural Flood Management |
| **NPPF** | National Planning Policy Framework |
| **PFR** | Property Flood Resilience |
| **PFRA** | Preliminary Flood Risk Assessment |
| **PPG** | Planning Policy Guidance |
| **RFRA** | Regional Flood Risk Appraisal |
| **RMA** | Risk Management Authority |
| **RoFSW** | Risk of Flooding from Surface Water |
| **SEA** | Strategic Environmental Assessment |
| **SFRA** | Strategic Flood Risk Assessment |
| **SRFCC** | Southern Regional Flood and Coastal Committee |
| **SuDS** | Sustainable Drainage Systems |
| **SWMP** | Surface Water Management Plan |
| **TE2100** | Thames Estuary 2100 Plan |
| **TFA** | Thames Flood Advisors |
| **TfL** | Transport for London |
| **TRFCC** | Thames Regional Flood and Coastal Committee |
| **TWUL** | Thames Water Utilities Limited |
| **WFD** | Water Framework Directive |

# 1. Introduction

## 1.1 Background

Following the 2007 floods, which caused significant damage across London, the Government commissioned Sir Michael Pitt to review the events of the summer of 2007. This review identified what measures could be undertaken to reduce the risk and the impacts of flooding on communities across the country. The Pitt Review made 92 recommendations, which led to the April 2010 Flood and Water Management Act (FWMA). The FWMA introduced several new requirements and responsibilities for councils to deliver on, to better protect communities from flood risk.

In line with the FWMA, the council is a designated Lead Local Flood Authority (LLFA). The LLFA are responsible for managing flood risk from surface water, groundwater, and ordinary watercourses and are required to produce and maintain a Local Flood Risk Management Strategy (LFRMS). This document will update the existing LFRMS published in 2015.

This LFRMS is aimed at the LLFA as the main authority responsible for managing local flood risk. Other departments within the council should also be familiar with this LFRMS, namely Highways, Emergency Planning and business continuity, Development Management, Sustainability, and Parks, Estates and Open Spaces, as they are also involved in achieving statutory LLFA duties and in the management of local flood risk. Risk Management Authorities (RMAs) such as the Environment Agency (EA) may use this LFRMS as they are the authority with a strategic overview role on all types of flooding.

Finally, this LFRMS is aimed at residents and local businesses as they are directly impacted by flooding and will benefit from improved flood risk management. It is also encouraged that residents, businesses, and local landowners take action and contribute to the management and reduction of local flood risks.

## 1.2 Purpose

The purpose of the LFRMS is to present how the LLFA will deliver flood risk management within its administrative boundary. This is based on the local flood risk for the area and is supported by outputs from other strategic documents, such as the Strategic Flood Risk Assessment (2017) (SFRA) and Surface Water Management Plan (2022) (SWMP). In conjunction with the LFRMS a detailed action plan will be produced listing actions the LLFA will take to manage flood risk.

## 1.3 Strategic Objectives of the LFRMS

The council's LFRMS strategic objectives are presented in Figure 1, with the LFRMS Action Plan set out in Appendix B.

The LFRMS aims to support the delivery of the National FCERM Strategy by following its three core objectives, which are:

- **climate resilient places:** working with partners to bolster resilience to flooding and coastal change across the nation, both now and in the face of climate change
- **today's growth and infrastructure resilient in tomorrow's climate:** making the right investment and planning decisions to secure sustainable growth and environmental improvements, as well as resilient infrastructure
- **a nation ready to respond and adapt to flooding and coastal change:** ensuring local people understand their risk to flooding and coastal change and know their responsibilities and how to take action.

**The following local objectives have been developed for the current strategy:**

**Figure 1 LFRMS Objectives**

**Objective A -** Improve knowledge and understanding of flood risk within Royal Greenwich

**Objective B -** Maximise sustainability and biodiversity benefits to Royal Greenwich by taking a holistic approach to flood risk management

**Objective C -** Reduce the risk of flooding to the community in Royal Greenwich by delivering targeted flood alleviation schemes (FASs) and encouraging the use of sustainable drainage systems (SuDS)

**Objective D -** Investigate new funding opportunities available to develop flood risk management within Royal Greenwich

**Objective E -** Improve community awareness and preparedness of flood risk within the borough

## 1.4 Legislative Context

The Flood and Water Management Act (2010) (FWMA) sets out the responsibilities and duties governing bodies must deliver. Under this legislation, the council is appointed as the LLFA for the borough. The LLFA is responsible for the management of surface water, groundwater, and ordinary watercourses (defined as 'local flood risks'). Under Section 9 of the FWMA the LLFA has the statutory duty to 'develop, maintain, apply and monitor a strategy for local flood risk management in its area'. This LFRMS replaces the previous council's LFRMS published in 2015.

In addition to the FWMA, the LFRMS must align with other relevant legislation and policy, including the London Surface Water Strategy 2025 and the Thames Estuary 2100 Plan 2023. Further information on relevant international, national, regional and local policy and legislation that inform the LFRMS can be found in Appendix A. The council are also producing a new SFRA and will be developed summer 2025.

## 1.5 LFRMS Structure

The LFRMS document will take on the following structure and is split up via objectives from the Action Plan:

- **introduction** – Provides an overview on the background, purpose, and structure of the LFRMS. Summarises the key legislative policies related to the LFRMS and outlines the strategic objectives
- **roles and responsibilities** – Outlines the roles and responsibilities of the LLFA and other RMAs, alongside local and regional partnership groups relevant to local flood risk management
- **objective A** – This section will focus on how the council will align with the objective of improving knowledge and understanding of flood risk within Royal Greenwich
- **objective B** - This section will focus on how the council will maximise sustainability and biodiversity benefits to the borough by taking a holistic approach to flood risk management
- **objective C** – This section will highlight case studies of how the council is reducing the risk of flooding to the community within the borough by delivering targeted flood alleviation schemes (FASs) and encouraging the use of sustainable drainage systems (SuDS)
- **objective D** – This section will cover the potential funding opportunities available to the council

- **objective E** – This section will explain how the council plan to improve community awareness and preparedness of flood risk within the borough.

## 1.6 Additional Assessments:

As the LFRMS is a local strategy, it must be assessed through Strategic Environmental Assessment (SEA) and Habitats Regulations Assessment (HRA) screening reports.

### 1.6.1 Strategic Environmental Assessment

The purpose of the SEA is to assess whether the proposed LFRMS strategic objectives and actions will pose any significant impacts to local environments or habitats. An SEA is required under the European SEA Directive (2001) which establishes five stages of assessment.

- **Stage A:** Setting the context and objectives, establishing the baseline and deciding on the scope.
- **Stage B:** Developing and refining alternatives and assessing affects.
- **Stage C:** Prepare the sustainability appraisal report.
- **Stage D:** Seek representations on the sustainability appraisal report from consultation bodies and the public.
- **Stage E:** Post adoption reporting and monitoring.

Appendix D presents the SEA screening report which completes Stage A and determines whether progression onto later stages is required.

### 1.6.2 Habitats Regulations Assessment

The purpose of the HRA is to determine if the proposed LFRMS strategic objectives or actions will pose any risks or implications to habitats and protected areas. This is required under the Conservation of Habitats and Species Regulations (2017). There are three tasks to a full HRA.

- **Stage 1:** Screening - to check if the proposal is likely to have a significant effect on the site's conservation objectives. If not, you do not need to go through the appropriate assessment or derogation stages.
- **Stage 2:** Appropriate Assessment - To assess the significant effects of the proposal in more detail and identify ways to avoid or minimise any effects.
- **Stage 3:** Derogation - to consider if proposals that would have an adverse effect on a European site qualify for an exemption.

Appendix D presents the HRA screening report which completes Task 1 and determines whether progression onto later tasks is required.

## 1.7 How This Strategy was Developed

Consultation on the draft LFRMS was carried out from the [consultation start date] until [consultation end date]. During this consultation, the draft LFRMS and appendices were published on the council's website [detail other comms]. The council received [number of responses] in total from the general public. The following internal and external stakeholders were also consulted during the development of the LFRMA.

- Public Realm department
- Highways
- Planning
- Emergency Planning
- Parks
- Sustainability

Feedback provided in the consultation has been addressed and incorporated in the LFRMS.

The updated Strategy and its associated SEA and HRA were submitted in [date of submission] for review by the three Statutory Agencies with environmental responsibilities in England: the EA, Historic England and Natural England. The responses from the consultation have been incorporated into the LFRMS and the SEA and HRA.

# 2. Roles and Responsibilities

As the LLFA, the council has several roles and responsibilities through both the Flood Risk Regulations (FRR) and Flood and Water Management Act (FWMA). The ways in which the council is working to respond to these challenges, both individually and in partnership, are set out below.

## 2.1 The council

The council has multiple RMA roles and functions, including as a Highway Authority, an LLFA, a landowner, and a Category One responder (refer to Section 2.2).

As a Highway Authority, the council is responsible for maintaining any highway assets on any roads not on the Strategic Road Network i.e. not managed by TfL. The council's internal highways team is responsible for drainage assets such as drains, kerbs, road gullies, ditches, and pipes. These must be maintained and routinely inspected to ensure that highway runoff on and from highways is well managed. The council's highways team is responsible for the highway gullies and pipework up to the point it connects to the public sewer network.

Under the FWMA and as an LLFA, the council is the lead RMA for managing flood risk from surface water, ordinary watercourses, and groundwater sources.

Their functions include:

- development, implementation, and maintenance of a LFRMS
- maintenance of a register of structures or features which are likely to have a significant effect on flood risk in the area
- reviewing and consulting of surface water drainage proposals for major planning developments
- regulating works within the proximity of ordinary watercourses (consenting and enforcement)
- carry out works to help alleviate surface water, groundwater, and ordinary watercourse flooding in collaboration with other RMAs
- undertake flood investigations (under Section 19 of the FWMA) for flood incidents which meet a defined threshold. This threshold is defined by the council's LLFA in Table 2.

A full list of responsibilities required by the FWMA can be found in Table 2.

**Table 2 The council's FWMA Responsibilities**

| The council's responsibility | Definition |
|---|---|
| **Co-operation and Arrangements** | Under Section 13 of the FWMA, LLFAs must co-operate with other relevant authorities in the exercise of their local flood risk management functions. |
| **Power to Request Information** | Under Section 14 of the FWMA the Royal Borough may request a person or organisation to provide information in connection with flood and coastal erosion risk management functions. |
| **Funding** | Section 16 of the FWMA sets out the Environment Agency's ability to make grants available in respect of costs incurred or expected to be incurred in connection with flood or coastal erosion risk management in England. |
| **Local Authority Investigations** | Under Section 19 of the FWMA, the LLFA must investigate flood events where necessary, identify the relevant risk management authorities involved, and assess their actions. Once completed, the LLFA must publish the findings and inform the relevant authorities.<br><br>A Section 19 flood investigation is required to take place should at least one of the following criteria be met:<br><br>• flooding has affected critical infrastructure for a period in excess of three hours from the onset of flooding; or<br>• internal flooding of a building (residential or commercial) has been experienced on more than one occasion in the last five years; or<br>• internal flooding of five buildings (residential or commercial) in close proximity has been experienced during one single flood incident. |
| **Consenting to works to ordinary watercourses** | The council is responsible for approving changes to ordinary watercourses that may impact flow or increase flood risk, including structures like culverts, weirs, and bridges. This is in addition to other required permissions (e.g. planning approval).<br><br>There are 36km of Ordinary Watercourse in Royal Greenwich; further information is available in Section 5, of the RBG SFRA Level 1<br><br>The council is also responsible for the Water Framework Directive (WFD) for Ordinary Watercourses. The WFD requires a careful considered approach to any works that could affect ordinary watercourses.<br><br>Guidance notes on applications for consent under the Land Drainage Act 1991 for works affecting ordinary watercourses are available by emailing the council's Flood Team at: **flood-team@royalgreenwich.gov.uk** |
| **Preliminary Flood Risk Assessment (PFRA)** | The council produced and published a PFRA Addendum in December 2017 which updated the council's previous PFRA report, published in 2011. The council developed the document in co-ordination with all London Boroughs through the Drain London project, to ensure a consistent approach. |
| **Flood Risk Management Works** | The council, as the LLFA, has the power to carry out flood risk management work if it is considered the work is relevant to this strategy. The type of work which can be undertaken is defined after Section 14A (9) of the Land Drainage Act, as amended by Schedule 3 of the Flood and Water Management Act) and means anything done:<br><br>**a.** to maintain existing works (including buildings and structures) including cleansing, repairing or otherwise maintaining the efficiency of an existing watercourse or drainage work<br><br>**b.** to operate existing works (such as sluice gates or pumps)<br><br>**c.** to improve existing works (including buildings or structures) including anything done to deepen, widen, straighten or otherwise improve an existing watercourse, to remove or alter mill dams, weirs or other obstructions to watercourses, or to raise, widen or otherwise improve a drainage work<br><br>**d.** to construct or repair new works (including buildings, structures, watercourses, drainage works and machinery)<br><br>**e.** for the purpose of maintaining or restoring natural processes<br><br>**f.** to monitor, investigate or survey a location or a natural process<br><br>**g.** to reduce or increase the level of water in a place<br><br>**h.** to alter or remove works. |
| **Sustainable Development** | Under Section 27 of the FWMA the council, as the LLFA, must support sustainable development when managing flood risk. The borough recognises the importance of sustainable drainage to reduce surface water runoff and mitigate flood risk. Promoting sustainable development and drainage schemes is a key objective of this strategy. |

## 2.2 Other Stakeholders

RMA responsibilities can be found in Table 3.

**Table 3 Other RMA responsibilities**

| RMA | Responsibilities |
|---|---|
| **Environment Agency (EA)** | The EA is a lead RMA in flood risk management. Section 165 of the Water Resource Act (1991) appoints permissive powers related to Main Rivers to the EA, including the maintenance and improvement of existing works as well as the construction of new works. The FWMA also gives responsibility for the management of fluvial (river) flooding to the EA.<br><br>The Main Rivers within Royal Greenwich are:<br>• The River Ravensbourne<br>• The River Thames<br>• The River Quaggy.<br><br>As part of their permissive powers, the EA performs regular maintenance activities, including the inspection of any flood risk assets (EA or third party owned) for debris build up. Under the Civil Contingencies Act (2004), the EA is also regarded as a Category One Responder as defined in Section 2.2. |
| **Thames Water Utilities Limited (TWUL)** | TWUL is the regional water and sewerage company responsible for managing the risk of flooding from sewers including surface water, foul, and combined sewer systems. Under Section 94 of the Water Industry Act (1991), TWUL have a duty to inspect, maintain, and repair their sewers and other drainage assets. TWUL should advise the LLFA about any works being carried out and provide a platform for which sewer flooding incidents can be reported by residents. TWUL is also a clean water provider in Royal Greenwich and is responsible for mitigating water main leaks including reinstatement of the public highway if any damage occurs. |
| **Transport for London (TFL)** | Transport for London (TFL) are responsible for managing the operation of the public transport network across London and the drainage of surface water of the red routes of their Strategic Road Network. TfL's red routes within the borough are the following:<br>• A2 (Blackheath Hill, Blackheath Road, Deptford Bridge, East Rochester Way, Shooters Hill Road)<br>• A20 (Eltham Road, Sidcup Road)<br>• A102 (Blackwall Tunnel Southern Approach)<br>• A205 (Grand Depot Road, South Circular Road, Well Hall Road)<br>• A210 (Eltham Road)<br>• A2204 (New Ferry Approach)<br>• A2213 (Kidbrooke Park Road). |
| **National Highways** | National Highways manage drainage and assets on motorways, using their Drainage Data Management System to identify and prioritise high flood-risk areas.<br>In Royal Greenwich, key routes include:<br><br>A2 - Runs through Royal Greenwich, connecting it to other parts of London and beyond. It's a key route for both local and through traffic |
| **Category One Responders** | Category One responders are organisations that have responsibilities under the Civil Contingencies Act 2004 when a major flood incident is declared. These responsibilities include assessing the risk of a major flood incident and putting emergency plans in place for preventing, responding to, and recovering from flooding. Category One responders in Royal Greenwich include:<br>• The council<br>• Emergency Services<br>• The EA.<br><br>Depending on the circumstances of the incident, other organisations may be involved in the response to the incident, including Category Two responders as designated by the Civil Contingencies Act 2004. TfL and TWUL are both examples of Category Two responders. |
| **Other Landowners** | Landowners are primarily responsible for protecting their property from flooding. Under common law, they must not increase flood risk to neighbouring properties and may take reasonable protective measures if they don't harm others. Riparian landowners must keep watercourses and related structures on their land clear of debris to maintain natural flow. |

# 3. Objective A

## Improve knowledge and understanding of flood risk within the borough

This section identifies the different factors contributing to flood risk in Royal Greenwich and key areas of high risk. This baseline knowledge enables the council to build upon their local knowledge and introduce effective flood prevention measures.

### 3.1 Geography of Royal Greenwich

Royal Greenwich covers an area of approximately 47.4km². It is located in southeast London with the River Thames forming the entire northern boundary of the borough. It is then bordered on the east by Bexley, on the south by Bromley and on the west by Lewisham.

Royal Greenwich has a diverse topography which ranges from flat floodplains near the Thames to undulating and hilly terrain in the South in areas such as Eltham, Shooter's Hill (this is one of the highest points in London at 132m above sea level), Plumstead common, Oxleas Wood and Shrewsbury Park.

The northern end of the borough within the Thames floodplain contains soils that are alluvial and clay-rich while the southern end is comprised of London Clay, Thanet Sand and gravel ridges. This has a low permeability in contrast to areas closer to the Thames, which have more permeable soils allowing for better drainage. This is presented in Appendix E – Figure 2.

### 3.2 What is a Flood?

A flood is formally defined in the FWMA as; "where land not normally covered by water becomes covered by water."

A flood does not include flood water from any part of the sewerage system unless it is caused by an increase in the volume of rainwater (including snow and other precipitation) entering or otherwise affecting the system. Nor does it include flooding caused by a burst water main.

All sources of flooding are detailed in Section 3.5 below. In the context of this LFRMS, the focus of this strategy is local flooding from surface water runoff, groundwater and ordinary watercourses.

### 3.3 What is Flood Risk?

Flood risk is not just the likelihood of flooding occurring, but also the possible damage a flood could do. Assessing risk in quantifiable, financial terms can help prioritise where available funding should be directed as well as to support applications for additional external funding.

The consequences of flooding can be far reaching and are not always easy to quantify, particularly the social impacts of displacement, loss and fear of repeat events. All available information and past experiences have been considered in developing our objectives for managing future flood risk.

Flood risk is the likelihood of a particular flood happening (probability) e.g. 'there is a 1 in 100 chance of flood in any given year in this location' multiplied by the impact or consequence that will result if the flood occurs.

The evaluation of risk considers the severity of impacts from a flood event, which can be highly variable in terms of social, economic and environmental consequences. Consequences are often measured by number of properties flooded and level of economic damage. It will also be influenced by vulnerability (i.e. a basement flat or a key emergency service station is more vulnerable than a commercial warehouse). There will only be a risk if there is means (pathway) of connecting the source of the flood with the people, property, land etc. (receptors). Source, pathway and receptor must all be present for there to be a risk.

### 3.4 Local Flooding Characteristics

Royal Greenwich is vulnerable to a variety of sources of flooding which include:

- flooding from surface water
- flooding from river/ tidal flooding
- flooding from groundwater
- flooding from sewers
- flooding from artificial sources.

These sources are all interconnected and generally all act in combination causing flooding. Explanations of each of these forms of flood risk are described below.

You can check your local flood risk for your postcode area via the **check your long-term flood risk** tool.

### 3.5 Types of Flood Risk

#### 3.5.1 Tidal Flood Risk

Tidal flooding refers to the temporary inundation of low-lying areas from tidal watercourses during high tide. Royal Greenwich is influenced by tidal rivers including the River Thames, Ravensbourne, and Deptford Creek. The Thames has a large tidal range and therefore the risk to Royal Greenwich is extensive, however due to defences such as the Thames barrier, Royal Greenwich is defended against the extreme tide level with climate change to 2107. A breach in defences though unlikely could cause significant flooding of Thamesmead, New Charlton and Greenwich Peninsula.

#### 3.5.2 Fluvial Flood Risk

Fluvial flooding occurs when watercourses exceed their hydraulic capacity as a result of heavy or prolonged rainfall. The main source of fluvial flood risk is from Main Rivers. A Main River is defined by the EA (see **Main River Map**). A principal criterion for defining a watercourse as a Main River, as per **EA guidance**, is if there are a significant number of people and/or properties liable to flooding consequences from the watercourse. A map of Royal Greenwich's Main Rivers can be found in Appendix E – Figure 1.

Main rivers that influence fluvial flood risk in Royal Greenwich include:

- The River Thames
- The River Ravensbourne
- The River Quaggy
- Butts Canal
- Culverted Wickham Valley Watercourse and March Dykes.

A map of fluvial flood risk in Royal Greenwich can be found in Appendix E – Figure 5. This mapping shows that fluvial flood risk in Royal Greenwich is primarily associated with the River Thames and its tributaries. The River Thames runs along the northside of the borough boundary. There are significant areas of fluvial flood risk along this boundary, particularly in the northeast and northwest of the borough. The River Ravensbourne, which runs along the western boundary of the borough, flowing from the south-east of the borough towards the Thames, also contributes to the fluvial flood risk within Royal Greenwich, particularly in the Deptford area. The River Quaggy (a tributary of the River Ravensbourne) flows through the southern end of the borough including Mottingham, Eltham and Lee Green. This river often flows through culverts however can be seen in green spaces such as Sutcliffe Park, where it causes significant flood risk in the park and the surrounding Eltham area.

#### 3.5.3 Ordinary Watercourse Risk

Ordinary watercourses are channels through which water can flow and that do not form part of the classified main rivers network (i.e. not shown on the EA's Statutory **Main River map**). They include streams, drains, open ditches, cuts, culverts, sluices, dykes and surface water sewers (other than public sewers). Flood risks from ordinary watercourses arise from extreme weather conditions, causing a sudden increase in water levels and overflow.

Unlike main rivers, the council's LLFA have the responsibility and powers over ordinary watercourses.

In Royal Greenwich, there are several ordinary watercourses which contribute towards fluvial flood risk (Figure1 in Appendix E). The Wickham Valley Watercourse, otherwise known as the Wogebourne or Plumstead River, is a tributary of the River Thames located in the east of the borough. As seen in Figure 4 in Appendix E the Risk of Flooding from Surface Waer (RoFSW) Map, there is a high risk of flooding in the areas surrounding the Wickham Valley watercourse.

Below Wickham Valley Watercourse is the River Shuttle, a small tributary crossing through Avery Hill into London Borough of Bexley. As shown in the same map, the Shuttle puts a large portion of its nearby neighbourhoods and Avery Hill park at high risk from flooding.

### 3.5.4 Surface Water Flood Risk

Surface water flooding occurs during heavy or prolonged periods of rainfall, when the volume of water exceeds the capacity of the drainage network, and the water cannot drain away at a sufficient rate via infiltration resulting in ponding and overland flows.

Figure 4 in Appendix E shows the risk of flooding from surface water within the Royal Greenwich, according to the EA's RoFSW mapping.

Surface water flood risk is distributed throughout Royal Greenwich and generally follows the topography of the borough. Surface water flow paths are influenced by local railway embankments and highways, such as the North Kent Railway line, that dissect natural flow paths.

The RoFSW shows multiple areas susceptible to high surface water flood risk, with concentrations in the southwest. Key areas at high risk of surface water flooding include:

- Sutcliffe Park
- Westhorne Avenue
- Wynford Park
- Woodbrook/Waterdale Road Junction
- Brookhill Road
- Westfield/Eastmoor Street Junction.

Factors that contribute to the high risk of surface water flooding within these areas include low lying ground, surrounding watercourses, and impermeable ground conditions such as London Clay. Increasing impermeable surfaces through change of land use, for example by paving over front gardens, can also increase surface water flood risk.

### 3.5.5 Groundwater Flood Risk

Groundwater flooding occurs when prolonged rainfall causes the water table to rise. If the water table is too high, surface water is no longer able to infiltrate into the ground, causing flooding. In extreme circumstances, flooding can be caused by groundwater emerging directly from the ground. An area's risk of groundwater flooding is closely tied to the ground composition and presence of aquifers.

Royal Greenwich is at fairly high risk of groundwater flooding due to its proximity to the Thames, particularly the area surrounding Woolwich. Stretching along the northern end of the borough there is a consolidated aquifer which will likely increase flood risk due to high groundwater levels.

The British Geological Survey (BGS) uses a dataset which assesses groundwater flood risk based on geology and potential groundwater levels and can be found in Appendix E - Figure 6.

### 3.5.6 Sewer Flood Risk

Sewer flooding can occur when the volume of rainfall exceeds the capacity of the sewer system, resulting in the system surcharging and flooding. A blockage in the sewer system can also cause water to back up within the network, causing flooding. A lack of capacity in the sewer networks may be due to:

- an increase in flow (such as climate change impacts on rainfall and / or new developments).
- having to sustain rainfall events larger than the system is designed for.
- the failure of key infrastructure such as pumps or valves.
- a watercourse having been fully culverted or incorporated into the drainage network.
- a lack of maintenance which can sometimes lead to total blockage;
- groundwater infiltration into pipe networks in poor condition; and
- limited outflow from the sewer network due to high water levels in receiving watercourses.

Figure 7 in Appendix E shows the number of flooding incidents by postcode. The south end of the borough in areas such as New Eltham and Mottingham have experienced a high volume of incidents. Other areas also experiencing high incident rates include: Plumstead, Abbey Wood, and Shooters Hill.

### 3.5.7 Flood Risk from Other Sources

Artificial flooding occurs when the failure of infrastructure or human intervention results in flooding. Artificial flood sources include:

- reservoirs,
- canals,
- water retention ponds,
- docks,
- other artificial structures.

While risk of structural failure is low, flooding from artificial sources could cause significant damage. A key risk is failure of the Thames Barrier, which protects London from tidal surges. It has been identified that the **Thames Barrier will need to be replaced by 2070**. This will involve raising the height of the barrier and moving it to a new downstream location. Refer to Section 3.8.1 for more information on what the council is doing to reduce this risk through the production of a riverside strategy.

Another manmade feature is the Broadwater (Formerly Royal Arsenal Canal, Pilkington Canal or Ordnance Canal) now an aesthetic water feature in West Thamesmead with minimal flood risk, as reflected in the reservoir flooding map (Appendix E-Figure 10).

## 3.6 Critical Drainage Areas

The 2011 SWMP identified Local Flood Risk Zones (LFRZs), where surface water flooding poses a risk to properties, businesses and infrastructure. Following this, the council identified Critical Drainage Areas (CDAs), distinct areas with critical drainage problems. The CDAs identified are listed in Table 4 and mapped in Appendix E - Figure 8.

**Table 4 Royal Greenwich CDAs identified in the Greenwich SWMP (2011).**

| CDA | LFRZ | Site ID | Source of Flooding |
|---|---|---|---|
| **Group6_001** | 6022 | Thamesmead / Eynsham Drive | Surface Water / Fluvial |
| | 6023 | Wickham Lane | Surface Water / Fluvial |
| | 6002 | Marmadon Road, Abbey Grove | Surface Water |
| | 6001a | Woolwich Town Centre | Surface Water |
| **Group6_008** | 6009 | Avery Hill | Surface Water |
| **Group6_010** | 6019 | Meadowcourt Road (Eltham Road) | Surface Water / Fluvial |
| **Group6_011** | 6025 | The Slade, Plumstead Common | Surface Water |
| **Group6_012** | 6024 | The Tarn | Surface Water |
| **Group6_013** | 6026 | Broadwalk and Charlton, Prospect Vale | Surface Water |
| **Group6_014** | 6032 | Wendover Road | Surface Water |
| | 6027 | Thames Barrier Industrial Estate | Surface Water |
| | 6028 | Ruston Road | Surface Water |
| | 6029 | Prentiss Court | Surface Water |
| | 6030 | Floyd Road/ Delafield Road | Surface Water |
| | 6032 | Bugsby Way | Surface Water |
| **Group6_015** | 6035 | A2 Rochester Relief Road/ Eastbrook Rd | Surface Water |
| **Group6_016** | 6033 | Maritime Museum | Surface Water |
| | | Cutty Sark | Surface Water |
| | | Horseferry Place | Surface Water |
| **Group6_017** | 6020 | Cambert Way | Surface Water |
| **Group6_018** | 6021 | Mottingham Road / Dunkery Road | Surface Water |

## 3.7 Flooding History within Royal Greenwich

The Environment Agency Historic Flood Map identifies historic flood outlines from flooding from main rivers in Royal Greenwich in 1965 and 1968. In 1965 the River Quaggy overflowed flooding the area west of the Eltham Green junction. In September 1968, a number of areas across London flooded. In Royal Greenwich, heavy rainfall caused the Rivers Quaggy and Kyd Brook to flood parts of southwest Greenwich, including areas near Blackheath Park and Eltham Green.

The Ravensbourne, and in particular the Quaggy, have benefited from flood alleviation measures, such as the Sutcliffe Park flood storage area scheme, to reduce the risk to the community from fluvial flooding by removing the rivers from culverts and returning them to a more natural state.

Recently completed Section 19 Investigations for Royal Greenwich include:

- April 2023 - Section 19 investigation to investigate property level flooding experienced on Woodbrook Road (SE2 0PE) and Waterdale Road (SE2 0XT) during 6th November 2022 This was caused by a blocked trash screen at Marsh Dykes
- a borough wide section 19 was also produced to investigate the flood events from November 2023 to May 2024. The locations examined were:

1. **Kingsground,** Middle Park, including areas around King John's Walk: Causes – steep topography, drainage channel along King John's Walk had become heavily silted, blocked gullies
2. **Nathan Way,** Plumstead (east of the borough), including areas around Magpie Lane, Ridgeway and White Hart Road: Causes – steep topography, blocked gullies, drainage network had backed up due to Crossness Pumping Station not discharging
3. **Plumstead Road:** Causes – low lying topography, many gullies had large inlets allowing debris to enter and block drainage network
4. **Plumstead High Street:** Causes – steep topography, gully maintenance (issue with swan neck inlet gully).

Appendix E – Figure 9 displays where all the Section 19 investigations have been undertaken within the borough.

## 3.8 Future Flood Risk Considerations

The council is continuously looking to reduce the risk of flooding within the borough; however, this risk will never be eliminated. There are several factors that will increase the risk of flooding in the future, such as:

- climate change (increased storm duration and frequency) see Section 4.1
- urban creep (infill development and loss of green space)
- ageing infrastructure (increased pressure on drainage systems and other infrastructure designed for different patterns of use and in deteriorating condition; and,
- population growth (denser populations mean the impact of a flood for a given area will impact more people).

### 3.8.1 Future of Royal Greenwich Riverside

Royal Greenwich extends for 13.7 km along the Thames Riverside. Without flood defences the current risk of flooding from the river is 0.1% or higher. However, this risk is reduced by the existing flood defences.

Thames Estuary 2100 (TE2100) identifies the following key sites at risk of flooding within Royal Greenwich's policy unit:

- schools, universities and colleges
- East Greenwich Fire Station
- the Millennium village
- the O2 Arena
- North Greenwich underground station and bus station
- the Cutty Sark
- parts of Maritime Greenwich, a World Heritage Site.

The council will be producing their riverside strategy by 2030 which will map a way forward for managing the risk of tidal flooding to make people and property safer. This will mean reshaping our riverside but will also provide the opportunity to create additional benefits in line with the TE2100 plan.

# 4. Objective B

## Maximise sustainability and biodiversity benefits

This objective aims to maximise sustainability and biodiversity benefits to Royal Greenwich by taking a holistic approach to flood risk management, using natural flood management (NFM) or SuDS. Adaptation and improving flood resilience through these measures is becoming increasingly necessary due to the pressures of climate change and national policy, such as the introduction of **biodiversity net gain**.

## 4.1 What is Climate Change?

The United Nations (UN) defines climate change as long-term changes in the Earth's climate that are warming the atmosphere, ocean and land. Climate change is affecting the balance of ecosystems that support life and biodiversity and impacting health. It also causes more extreme weather events, such as more frequent and more intense hurricanes, floods, heatwaves and droughts, and leads to sea level rise and coastal erosion because of ocean warming, melting of glaciers and loss of ice sheets. Since the 1800s, **human activities have been the main driver of climate change**, primarily due to the burning of fossil fuels like coal, oil and gas.

## 4.2 What is Resilience and Adaptation?

The UN defines resilience as the capacity of a community or environment to anticipate and manage climate impacts, minimize their damage, and recover and transform as needed after the initial shock.

Adaptation has been defined as the actions that help reduce vulnerability to the current or expected impacts of climate change like weather extremes and hazards, sea-level rise, biodiversity loss, or food and water insecurity.

Examples of the council taking action to improve resilience and adaptability:

- Transport Strategy 2022 Objective 1.3: "Reduce car dependency in the borough" by Introducing emissions based parking charges and improving active travel infrastructure
- Carbon Neutral Plan Commitments aim to reduce car use by 45% by 2030, Require 51% of all cars to be electric vehicles (EVs) by 2030 and expand EV charging infrastructure, including in underserved areas.

## 4.3 Plans for Delivering Sustainable Solutions

The council is committed to the following policy to ensure sustainable solutions are followed in all developments.

### 4.3.1 London Plan Policies

#### Policy G1 Green Infrastructure

**A** London's network of green and open spaces, and green features in the built environment, should be protected and enhanced. Green infrastructure should be planned, designed and managed in an integrated way to achieve multiple benefits.

**B** Boroughs should prepare green infrastructure strategies that identify opportunities for cross-borough collaboration, ensure green infrastructure is optimised and consider green infrastructure in an integrated way as part of a network consistent with Part A.

**C** Development Plans and area-based strategies should use evidence, including green infrastructure strategies, to:

1. identify key green infrastructure assets, their function and their potential function
2. identify opportunities for addressing environmental and social challenges through strategic green infrastructure interventions.

**D** Development proposals should incorporate appropriate elements of green infrastructure that are integrated into London's wider green infrastructure network.

#### Policy G5 Urban Greening

**A** Major development proposal should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.

**B** Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. The UGF should be based on the factors set out in Table 8.2 but tailored to local circumstances. In the interim, the mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development (excluding B2 and B8 uses).

**C** Existing green cover retained on site should count towards developments meeting the interim target scores set out in (B) based on the factors.

### 4.3.2 Local Plan Policy - Policy E2 Flood Risk

This policy refers to the **Boroughs Strategic Flood Risk Assessment (2017)** which must be used to inform development and reduce Flood Risk in Royal Greenwich. The policy encourages sustainable design and construction.

The council's Strategic Flood Risk Assessment must be used to inform development and reduce flood risk in Royal Greenwich by:

i. applying the sequential and exceptions tests as detailed in the National Planning Policy Framework and accompanying Technical Guidance

1. demonstrating consideration of all forms of flood risk by preparing flood risk assessments, in line with **advice from the Environment Agency.**

### 4.3.3 Local Plan Policy - Policy E3 Residual Flood Risk

In addition to the measures within policy E2, development within those areas protected by flood defences but with a high residual risk classification should implement risk reduction measures with the primary aim of reducing risk to life.

Developers, as part of their flood risk assessment must consider climate change and future flood risk to the site.

### 4.3.4 The council's Carbon Neutral Plan

The council's **Carbon Neutral Plan** was approved by full council on 24th November 2021 and sets out what changes will be made and what actions are necessary to ensure that the targets set are met. The full list of actions can be viewed **here**.

### 4.3.5 The council's Infrastructure Delivery Plan

The **Infrastructure Delivery Plan** was published in July 2023 to support the provision of key infrastructure set out in the Local Plan. This is an important role in flood risk management as it outlines the council's plans for ensuring that the risk of flooding is minimised in the delivery of infrastructure. The strategy identifies the Thames Barrier as a key infrastructure requirement in the short term until later in the century where significant changes to flood defences will be required.

## 4.4 Strategies for Sustainable Development

The development of sustainable flood risk management is a priority for the council. The following sections include potential flood risk management solutions the council look to incorporate to maximise wider benefits alongside flood benefits, when compared to traditional drainage solutions.

### 4.4.1 Sustainable Drainage Systems

Sustainable Drainage Systems are designed to manage water as close to the source as possible, relieving pressure on the sewer systems by mimicking natural drainage via infiltration and attenuation. SuDS offer multiple benefits including:

- reducing flood risk
- managing air and water quality pollution
- improving amenity spaces such as creating habitats, recreational areas, or places for biodiversity
- aiding groundwater and/or aquifer recharge
- improving local environmental education
- supporting successful development schemes through aesthetically pleasing, greening design.

**Examples of SuDS include:**

- water harvesting (water butts, blue roofs)
- infiltration (soakaways, infiltration trenches)
- detention or attenuation (bioretention, raingardens, retention ponds, geocellular storage)
- conveyance (swales, conveyance channels).

### 4.4.2 Natural Flood Management

Natural Flood Management (NFM) involves implementing measures to help protect, restore and replicate the natural processes of catchments, floodplains, rivers and coastal areas to help reduce flood risk.

The primary goal of NFM is to either lower peak volume of floodwater (peak flood flow) or delay the peaks arrival downstream, allowing more time for preparation.

NFM can be achieved through four main mechanisms:

- **enhancing flood storage:** creating areas that temporarily hold excess water during a flood and release it gradually – such as restored floodplains or storage ponds
- **increasing catchment and channel roughness:** slowing the flow of water by increasing resistance – this could include tree planting, hedgerows and re-meandering rivers
- **promoting water losses:** encouraging water to infiltrate into the ground or evaporate – Through methods like reducing soil compaction or installing infiltration-based SuDS
- **de-synchronising peak flows from tributaries:** slowing water from some tributaries to prevent simultaneous peak flows from combining and worsening flooding downstream.

# 5. Objective C

## Reduce the risk of flooding to communities

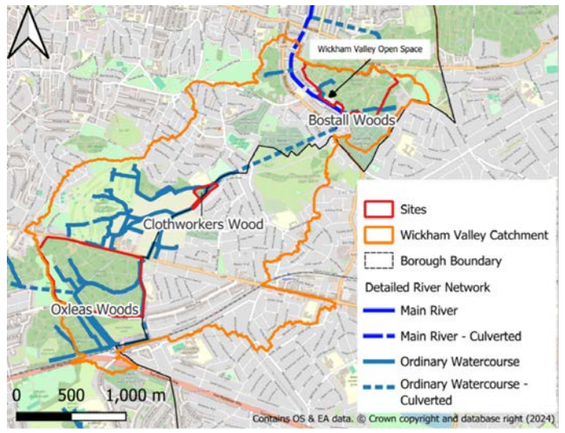
This objective is focused on reducing risk to communities by delivering targeted FASs and encouraging the use of SuDS. This section will highlight a case study of what the council is currently doing and plans for scheme delivery.

## 5.1 Greenwich NFM Programme

The Greenwich NFM programme is an initiative run by the council in partnership with Defra, to implement NFM projects around the Wickham Valley Watercourse area. For an explanation of NFM see Section 4.4.2.

This project example focuses on the upper catchment of the Wickham Valley watercourse, also known as the Wogebourne. The sites targeted by this project are Oxleas Woods, Clothworkers Wood and Bostall Woods (Figure 2).

**Figure 2 Study area and target sites**




### 5.1.1 Flood Risk Context

The EA' RoFSW mapping identifies widespread flood risk across the Wickham Valley catchment:

- **Oxleas Woods:** Nine residential properties downstream (Oxleas Close and Bellgrove Road) are at risk from frequent flood events
- **Clothworkers Wood:** Over 30 properties are at risk from surface water flooding, with many within Flood Zone 3
- **Bostall Woods:** More than 60 properties are at risk downstream, with past incidents of river and groundwater flooding (e.g., November 2022 in Woodbrook Road).

The catchment is also recognised in the Borough's SWMP and falls within a CDA, reinforcing the need for resilience measures.

### 5.1.2 The council's Approach

The NFM programme is valuable not only for the immediate schemes being delivered, but also as a model for future NFM projects. The council followed a structured process consisting of:

**1. identifying risk**

- using RoFSW mapping, Flood Zone data, and historic flood records to identify communities at highest risk
- prioritising woodland catchments where NFM could provide co-benefits.

**2. exploring funding opportunities**

- aligning local priorities with national funding programmes, including Defra's NFM pilot funding
- considering opportunities for match-funding and partnership support.

**3. developing options**

- designing a package of NFM measures appropriate to each woodland site, including:
- leaky dams and shallow berms to slow flow and increase in-channel storage
- runoff management features (berms, barriers, and raised paths) to intercept secondary flow paths
- wetland creation and regrading to provide detention capacity and ecological enhancements
- evaluating potential storage and resilience benefits, these may be refined through detailed design.

**4. embedding wider benefits**

- ensuring proposals would not only reduce flood risk but also:
- enhance biodiversity and woodland habitats
- create educational and recreational value for local communities
- build climate resilience in line with borough priorities.

### 5.1.3 Proposed works:

**Oxleas Woods:**

- a combination of leaky dams (see example in Figure 3) and shallow berms along the watercourse to use the existing in-channel storage more effectively
- runoff management interventions along a secondary flow path within Oxleas Woods. To slow down runoff, shallow berms, leaky barriers and raised footpaths can be implemented at tactical points along the flow path to create pockets of wet woodland.

**Clothworkers Woods**

- combinations of leaky dams and shallow berms along the channel. Minor excavation will also be implemented where possible to increase the storage capacity of the features.

**Bostall Woods**

- additional storage will be created within the Wickham Valley open space through the excavation of a small wetland.

While specific storage volumes and hydraulic outcomes will evolve through design and delivery, the core value of the Greenwich NFM Programme lies in its replicable method which designs adaptable NFM interventions while delivering co-benefits to communities.

**Figure 3 Example of a Leaky Dam in the Surrey Hills**

# 6. Objective D
## Investigate new funding opportunities

This section outlines potential funding options available to the council as multiple funding sources are often required to develop flood risk schemes. The council will endeavour to work with both partnership groups, RMAs and other stakeholders to ensure that new funding opportunities are sought and new funding opportunities are investigated (Table 5).

**Table 5 National, Regional and Local funding opportunities**

| Funding Type | Funding Name | Details |
|---|---|---|
| **National Funding** | Flood and Coastal Erosion Risk Management Grant in Aid (FCERM GiA) | This funding option is provided by the Department for Environment, Food and Rural Affairs (DEFRA) and can be used for any type of flood and coastal erosion risk management (FCERM) project.<br>According to the DEFRA guidance, a FCERM project may be:<br>• a scheme to reduce flood or coastal erosion risk<br>• a study to investigate options for a scheme<br>• a study leading to a strategy or management plan<br>• work to prepare a strategy. |
| | Local Levy (Thames RFCC) | Local Levy funding is available for the council through the Thames RFCC for flood risk schemes, both traditional and natural, but only those not funded by the FCERM GiA. Funds are raised by a levy on local authorities and committee members are appointed from the LLFA and the EA to plan and invest in flood and coastal erosion risk management. |

| | | |
|---|---|---|
| **Local and additional funding** | Department for Levelling Up, Housing and Communities (DLUHC) | General LLFA related duties are funded by the DLUHC Revenue Grant Support Funding. This is made available to Councils for LLFA duties under the FWMA and FRR within the budget of the DLUHC.<br><br>The DLUHC recently replaced the Ministry for Housing, Communities and Local Government (MHCLG) Revenue Grant. |
| | GLA Funding | The Greater London Authority (GLA) provides several funding streams and strategic support to borough councils for Natural Flood Management (NFM) and Sustainable Drainage Systems (SuDS)<br><br>• PROSPER Project (SuDS Funding Access): £1 million allocated from the Thames Regional Flood and Coastal Committee (TRFCC). Lead Local Flood Authorities (LLFAs) can apply for up to £75,000 per project. Focus on SuDS retrofitting and nature-based solutions<br><br>• London Surface Water Strategy Funding: Supports borough led Surface water Catchment Partnerships. |
| | Community Infrastructure Levy | The Community Infrastructure Levy is a charge which can be levied by local authorities on new developments in their area. The funding raised can be spent on a range of infrastructure including transport, flood defences, schools, hospitals, recreation, and open spaces. This is an important tool for the council for delivering its infrastructure needs to support development in the borough. |
| | RMA Partnership Funding (TWUL, Highways England, TFL) | RMA Partnership Funding refers to financial contributions provided by stakeholders involved in an RMA (Recovery Management Agreement) or similar collaborative partnership, typically aimed at delivering or supporting infrastructure, asset maintenance, or recovery works. |
| | Section 106 (S106) | Section 106 agreements are used to mitigate the impact of development and help to ensure that the council's planning policy requirements (as set out in the Core Strategy and the Section 106 Supplementary Planning Document) are met.<br><br>S106 obligations include:<br><br>• site-specific financial contributions for defined purposes such as education, traffic and<br><br>• transport/highways related works, open space and affordable housing contributions;<br><br>• provision of on-site affordable housing; and<br><br>• non-financial obligations, including requirements such as employment and skills<br><br>• strategies, construction management plans and travel plans. |

## 6.1 Local and Regional Partnership Groups

The council is part of the following local and regional partnership groups displayed in Table 6 and plans to remain actively involved in these groups going forward to ensure positive collaboration with stakeholders and neighbouring boroughs. Funding opportunities will be sought through these collaborative partnerships.

**Table 6 Partnership groups the council is involved with**

| Partnerships | Partners | Responsibilities | Frequency |
|---|---|---|---|
| **Regional Flood and Costal Committees (Thames RFCC and Southern RFCC)** | All Boroughs | RFCCs were established by the Environment Agency under the FWMA. RFCCs guide flood and coastal erosion risk management activities within their river catchments and along the coastline.<br><br>The council also sit on the committee representing the boroughs of Bexley, Lewisham and Bromley. | Quarterly |
| **Thames Water and the council's Working Group** | Thames Water, the council | A monthly catchup with TW to discuss any joint issues. | Monthly |
| **Southeast London Flood Risk Management (SELFRM) Officers Group** | Bexley, Bromley, Lewisham, the council, Southwark, Lambeth, Environment Agency, Thames Water | Local Partnership between neighbouring authorities. | Monthly |
| **Southeast London Flood Risk Management (SELFRM) Officers and Members Group** | Members and Officers from all boroughs | Meeting held between Local Officers and Members. The council provide feedback from the Thames RFCC to all local authorities in this group. The council represent Bexley, Bromley, Lewisham at the RFCC Meetings. | Quarterly |
| **Thamesmead and Marsh Dykes Catchment Partnership** | Thames 21, Peabody, Environment Agency, Thames Water, the council | This is a partnership group focused on river quality. | Quarterly |
| **Ravensbourne Catchment Partnership** | Thames 21, Peabody, Environment Agency, Thames Water, the council, Lewisham | This is a partnership group focused on river quality. | Quarterly |
| **London Drainage Engineers Group (LoDEG)** | EA, Defra TfL, National Infrastructure Commission, London Flood Authorities | This group is run by the Greater London Authority to bring together all London LLFA's to discuss current issues and industry updates. | Quarterly |
| **Thames Tidal Councils** | Thames Estuary 2100 team, Local Authorities | This group represents all the authorities with a river frontage. | Quarterly |
| **London Flood Risk Management Strategic Partnership** | EA, London Councils, Thames Water, TFL, Mayor of London | Collaboration of key organisations working to improve flood risk management in London particularly for surface water flooding. | Quarterly |

# 7. Objective E

## Improve community awareness of and preparedness for flooding

The final objective of the LFRMS is to improve community awareness and preparedness of flood risk within the borough. This section will cover what guidance the council currently provide and plans for future engagement.

### 7.1 Supporting Resilient Local Communities

The council declared a climate emergency on 26th June 2019. This declaration acknowledged the urgent need to address climate change and committed the council to achieving net zero carbon emissions by 2030, twenty years ahead of the UK's national target.

Following the declaration the Council developed a Carbon Neutral Plan which was approved in November 2021. This plan outlines the strategies and actions necessary to meet the 2030 target, focusing on areas such as reducing carbon emissions from transport and buildings, enhancing energy efficiency and promoting sustainable practices throughout the borough.

As part of the carbon neutral plan the council have:

- developed a partnership of local organisations focused on tackling climate change, where members can inspire and collaborate to reduce emissions
- expanded the Climate Emergency Network, consisting of residents committed to addressing climate change
- incorporated feedback from the council Young Commissioners and involving young people in future activities through the Council's Children's Services department.

### 7.2 Guidance for Local Communities

The National FCERM Strategy for England explains that the implementation of flood risk management strategies must be a collaborative approach and that everyone needs to support these actions.

It is essential that communities, local businesses, land managers and infrastructure providers contribute towards planning and adapting to future flooding change. This guidance outlines how individuals can reduce their own risk to flooding. While these small-scale measures can be effective for reducing property-level flood risk, they are not intended to be a substitute for large-scale flood protection measures and defence structures e.g. Thames Flood Barrier (refer to Thames Estuary 2100 Plan). The Council will continue work with stakeholders to improve the Council's flood defence infrastructure in line with local, regional and national flood risk management plans.

Please see Appendix F for community information on how to reduce risk, prepare an emergency plan and kit, what to do before during and after a flood, and flood reporting.

# Appendices

## Appendix A

| 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. 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 the council'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. |
| 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 EA 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 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 EA 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 EA to develop a NFCERMS for England, which all LFRMSs must align with. |
| **UK 25 Year Environment Plan (2018)** | The UK's 25 Year Environment Plan sets out the Government's plan to improve the environment within a generation. Key focuses of the plan include: (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. |
| **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)**<br><br>**NFCERMS Action Plan (2021)** | 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 Action Plan aligned with the long-term objectives of the NFCERMS. |
| **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 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. |

| | |
|---|---|
| **Thames Catchment Flood Management Plan (2009)** | The Thames Catchment Flood Management Plan (CFMP) is a plan which helps RMAs such as the EA to plan and agree the most effective ways to manage flood risk in the future. A CFMP considers all types of inland flooding from rivers, groundwater, surface water and tidal flooding but not directly from the sea (coastal flooding) which is instead covered in Shoreline Management Plans. CFMPs also consider likely effects of climate change, land use change / management and the need for future development. |
| **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 Estuary 2100 Plan (2023)** | The Thames Estuary 2100 (TE2100) Plan was developed by the EA 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 basis every ten years. 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. |
| **National standards for sustainable drainage systems (SuDS)** | The national standards provide information for designers, property developers, local authorities and other interested parties, such as sewerage undertakers and the Environment Agency. They also contain links to additional supporting information relating to sustainable drainage systems (SuDS). |

| Local | |
|---|---|
| Strategic Flood Risk Assessment (2017) | 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. |
| Local Plan (2022) | The Local Plan is developed by the LPA and sets out a vision and framework for the future development of the area. The council's Local Plan sets out policy and guidance to manage growth and guide development within the borough. 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. The plan is made up of the combination of strategic policies, addressing important priorities for the council, and non-strategic policies. |
| Surface Water Management Plan (2022) | 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. |

# Appendix B – Action Plan

To facilitate the delivery of the five strategic objectives of the LFRMS specific actions are required. An action plan has been prepared which lays out the corresponding actions to each objective. The following details are provided for each action:

- the funding required
- the lead organisation/department and any partners
- the timescale
- the current status
- the monitoring procedure
- links to relevant legislation and policy.

The timescales for each action are categorised as following:

- short term (0 - 2 years)
- medium term (2 - 4 years)
- long term (4 - 6 years)
- ongoing (continuing throughout the LFRMS cycles).

Actions with short term timescales are aimed to be delivered within the next two years. Medium term actions are those that will be delivered within the next 4 years, and long-term actions are those that will be delivered within the next 6 years, corresponding to the end of this LFRMS cycle. Ongoing and will be continued beyond six years and carried forward to updated versions of the LFRMS. The action plan also indicates the status of each action, as follows:

- red: the action has not been started yet
- amber: the action is in progress
- green: the action is complete.

High-level costs estimation for each action has also been included in the action plan. These are based on industry best practice and will be refined over the course of future years through the council's annual budgetary reviews. The costs have been separated into 'one-off' costs which are associated with projects or schemes delivery and 'annual costs' which are associated with tasks regularly carried out by LLFA.

| Actions | | | | Delivery | | Programme | | Links to Legislation/ Policy |
|---|---|---|---|---|---|---|---|---|
| **Strategic Objective** | **Action ID** | **Related Actions** | **Action Details** | **Lead Risk Management Authority** | **Partner Authorities/ Departments** | **Timescale from 2025** | **Current Status** | |
| **A Improve our knowledge and understanding of the flood risks within Royal Greenwich** | A1 | A6 | Continue to update flood webpages and mapping to ensure that the information and layers are up to date with the latest information and made easily accessible to the public. | Greenwich LLFA | The council's Web Team | Ongoing | Amber | FWMA |
| | A2 | A8 | Undertake a Borough wide study to improve and formalise understanding of areas at risk of groundwater flooding. Investigate status of groundwater monitoring stations. | Greenwich LLFA | Greenwich LLFA | End of 2030 | Red | |
| | A3 | A7 | Undertake Flood Investigations in line with policy set out within the council's Local Flood Risk Management Strategy. | Greenwich LLFA | Greenwich LLFA | Ongoing | Red | FWMA - Section 19 |
| | A4 | A5 | Ensure strategic documents and corresponding action plans remain current and up to date, i.e. LFRMS, SFRA and SWMP. | Greenwich LLFA | The council's Planning Team | Ongoing | Amber | FWMA - Section 9 |
| | A5 | A4 | Develop a riverside strategy for Royal Greenwich's Riverside, to ensure the borough is in line with the TE2100 plan and its river flooding defences are resilient to rising storm surge levels. | Greenwich LLFA | The council's Planning Team/ Sustainability Team/ Biodiversity Team | End of 2030 | Red | TE2100 |
| | A6 | A1 | Create and continue to maintain detailed records of instances of flooding using a suitable reporting tool, making improvements where necessary, to improve data collection on flooding within Royal Greenwich. This will also support the sharing of flood reports between RMAs. | Greenwich LLFA | Environment Agency, Thames Water | On-going | Amber | FWMA - Section 19 |
| | A7 | A3 | Keep the Multi-Agency Flood Plan up to date and that officers in all council departments are familiar with it to ensure efficient responses to flooding incidents and emergency recovery following a flooding event. | The council's Emergency Planning Team/ Greenwich LLFA | Internal Council Teams | Short-term | Red | |
| | A8 | A2, A9 | Complete an impact assessment of the pumping stations within Royal Greenwich to gain a better understanding of the benefits, risks, and energy saving opportunities. | Greenwich LLFA | Internal Council Teams | Short-term | Red | |
| | A9 | A6 | Continue to ensure that the flood asset register and critical asset register remains up to date. | Greenwich LLFA | Greenwich LLFA | On-going | Red | Highways Act 1980 |
| | A10 | | Promote onsite water management & awareness of contaminated land issues. | Greenwich LLFA | The council's Planning Team | On-going | Red | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **B**<br><br>**Maximise sustainability and biodiversity benefits to Royal Greenwich by taking a holistic approach to flood risk management.** | B1 | B3 | Review the council's climate change targets and put in place measures where flood risk management work can align or support these. | Greenwich LLFA, | The council's Sustainability Team. | Long term | Red | NFCERMS - Measure 2.2.2 |
| | B2 | C2 | Prioritise NFM schemes both through promoting NFM in internal council projects and through working with developers. | Greenwich LLFA | The council's Sustainability Team, Planning Team | Long term | Red | |
| | B3 | B1 | Maximise opportunities within FASs to improve biodiversity and identify ways to reduce the boroughs carbon footprint. | Greenwich LLFA | Environment Agency, the council's Sustainability Team | Long term | Amber | Greenwich Biodiversity Action Plan |
| **C**<br><br>**Reduce the risk of flooding to the community in Royal Greenwich by delivering targeted flood alleviation schemes (FASs) and encouraging the use of sustainable drainage systems (SuDS)** | C1 | E1 | Promote sustainable drainage to the public through education and communication on de-paving opportunities, water resource management, and runoff management. | Greenwich LLFA | Environment Agency, Thames Water | Ongoing | Red | NFCERMS - Measure 1.4.3 |
| | C2 | B2 | Promote benefits of green infrastructure such as green roofs to developers and promote incorporation and management of green assets within development. | Greenwich LLFA | The council's Planning Team | Ongoing | Amber | NFCERMS - Measure 1.4.3 |
| | C3 | C5 | Progress modelling opportunities and feasibility studies, particularly in the surface water flooding hotspots within the borough, to support ongoing development and understanding of flood risk. | Greenwich LLFA | Environment Agency, Thames Water | Ongoing | Red | NFCERMS - Measure 1.4.3 |
| | C4 | D2 | Continue to develop the asset maintenance and knowledge of the existing drainage infrastructure in Royal Greenwich to increase efficiency and ensure flood risk is minimised. | Greenwich LLFA | The council's Highways Team | Ongoing | Red | |
| | C5 | C3, D1 | Deliver FAS based on outputs of the SuDS opportunity mapping. | Greenwich LLFA | Environment Agency, Thames Water | Short-term | Red | NFCERMS - Measure 1.4.3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **D**<br><br>**To investigate new funding opportunities available to develop flood risk management within Royal Greenwich** | D1 | D3,C5 | Seek and apply for funding for flood risk management and surface water management works from a variety of sources including the Environment Agency, DEFRA, and third party sources. | Greenwich LLFA | Environment Agency, Thames Water, Thames Flood Advisors | Short-term | Red | NFCERMS - Measure B.1<br><br>Land Drainage Act (1991) - Section 14A |
| | D2 | C4 | Work across the council with partners and stakeholders to seek and influence opportunities to incorporate Flood Risk Management measures within existing and proposed works (e.g. works to the public realm, highways and traffic management schemes, parks and open spaces). | Greenwich LLFA | Environment Agency, Thames Water, Thames Flood Advisors | On-going | Amber | |
| | D3 | D1 | Keep an up to date list of ongoing and future funding opportunities to check regularly against potential schemes. This should include details on funding source, amount, timescales and requirements of the funding. | Greenwich LLFA | Environment Agency, Thames Water, Thames Flood Advisors | On-going | Red | NFCERMS - Measure B.1 |
| **E**<br><br>**Improve community awareness and preparedness of flood risk within the borough** | E1 | C1 | Look into setting up Flood Action Groups, particularly within hotspot areas and along the Thames that are at particular risk of tidal flooding. | Greenwich LLFA | The council's Housing Team, Communications Team, Community Groups, and charities | Short-term | Red | |
| | E2 | C2 | Produce resident's guidance giving useful design tips to residents when undertaking DIY projects in and around their properties. Expanding the guidance to promote benefits and value of green infrastructure to community. Provide information on green roofs, de-paving, water efficiency and waste disposal including misconnections. If feasible, host workshops in high risk areas. | Greenwich LLFA | The council's Planning/ Communications Team | Short-term | Red | NFCERMS - Measure 2.1.1<br><br>NFCERMS - Measure 2.5.2 |
| | E3 | C1 | Continue to update the communication plan on the council's website to enable residents to help themselves by providing information and improving their understanding of property-level resistance and resilience measures, and how residents can access reliable flood warning systems. Undertake promotion activities to raise awareness of surface water flood risk, including posts on the website and social media. | Greenwich LLFA | The council's Web Team | On-going | Red | NFCERMS - Measure 3.1.2<br><br>NFCERMS - Measure 3.1.3<br><br>Climate Resilience SPD 2.41 |

# Appendix C - Habitat Regulations Assessment

## Executive Summary


The purpose of the Habitats Regulations Assessment (HRA) Screening Report is to assess whether the council's Local Flood Risk Management Strategy (LFRMS) could pose potential risks or adverse effects to sites protected under the Conservation of Habitats and Species Regulations 2017 (commonly known as the Habitats Regulations). These protected areas, collectively known as Natura 2000 sites, include existing or proposed Special Areas of Conservation (SACs), Special Protection Areas (SPAs), and Ramsar sites.

As part of the HRA screening process, the strategic objectives and any associated actions within the LFRMS have been assessed for their potential to impact Natura 2000 sites. This screening determines whether further stages of HRA are required.

Although there are no Natura 2000 sites located within the administrative boundary of Royal Greenwich, sites located in proximity to the borough must also be considered, as they may share connections between their natural ecosystems. Two such sites have been identified within a 10km radius of the borough boundary:

- Lee Valley (SPA and Ramsar site)
- Epping Forest (SAC).

A comprehensive screening analysis was undertaken to examine each LFRMS strategic objective against the conservation objectives of the identified Natura 2000 sites. Potential harmful effects considered include:

- disruption to natural processes that support the ecological integrity of the sites
- reduction in the area, quality, or condition of designated habitats or species
- limitations on the potential for habitat or species restoration.

Following this analysis, it has been concluded that none of the LFRMS strategic objectives are likely to have a significant negative effect on the identified Natura 2000 sites. On the contrary, several objectives are anticipated to have positive or supportive effects to the sites, either directly or indirectly through enhancing their quality or offering further protection. As a result, it is determined that the HRA does not need to proceed to the appropriate assessment stage, and therefore, a full HRA is not required for the current version of the LFRMS.


## Contents

# Figures and Tables



# Acronyms and Abbreviations

**Table 1 1: Acronyms and Abbreviations**

| Abbreviation | Definition |
|---|---|
| **DEFRA** | Department for Environment, Food and Rural Affairs |
| **EA** | Environment Agency |
| **FWMA** | Flood and Water Management Act 2010 |
| **HRA** | Habitats Regulations Assessment |
| **LFRMS** | Local Flood Risk Management Strategy |
| **LLFA** | Lead Local Flood Authority |
| **Natura 2000 sites** | Also known as European sites, a network of core breeding and resting sites for rare and threatened species, and some rare natural habitat which are protected in their own right |
| **Ramsar** | Ramsar Sites are wetlands of international importance designated under the Ramsar Convention |
| **RMA** | Risk Management Authority |
| **SAC** | Special Area of Conservation |
| **SEA** | Strategic Environment Assessment |
| **SPA** | Special Protection Area |
| **SSSI** | Site of Special Scientific Interest |

# 1. Introduction

## 1.1 Purpose of Screening

### 1.1.1 Legislative basis

A Habitats Regulations Assessment (HRA) is required under the **Conservation of Habitats and Species (Amendment) Regulations (2019)** and the **EU "Habitats Directive"1992**, known as the Habitats Regulations. The purpose of this HRA is to evaluate the risks posed by actions in the Local Flood Risk Management Strategy (LFRMS) to habitats and protected areas.

#### EU 'Habitats Directive' 1992

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives." Article 6 (3)

#### Conservation of Habitats and Species Regulations 2010 (as amended)

"A competent authority, before deciding to … give any consent for a plan or project which is likely to have a significant effect on a European site or a European Offshore Marine Site (either alone or in combination with other plans or projects) … must make an appropriate assessment of the implications for the site in view of that site's conservation objectives … The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site …".

These sites include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), collectively referred to as European Sites or Natura 2000 Sites. In addition to this any proposed SACs, SPAs, both active and proposed Ramsar Sites (wetlands of international importance), and any areas secured as sites compensating for damage to a European site also require consideration in an HRA. The assessment is carried out in accordance with the requirements of the Conservation of Habitats and Species Regulations (2017), known as the Habitats Regulations. The purpose of the HRA is to ensure the integrity of these protected sites is maintained and that the impact of development will not have an adverse effect.

### 1.1.2 Scope of HRA

The scope of the HRA includes all European sites within Royal Greenwich, and additionally any European sites outside the borough which could potentially be impacted by measures or policies within the Local Flood Risk Management Strategy (LFRMS).

This report follows a staged approach, beginning with a screening assessment to determine whether significant effects are likely. The screening stage of a HRA aims to gather evidence of any significant or likely negative effect, which may then require progression on to the appropriate assessment phase. If required, an Appropriate Assessment will be undertaken to consider potential impacts in more detail and, if necessary, mitigation measure.

## 1.2 Methodology

A full HRA Assessment involves a three-stage process.

- Task 1 involves the identification of any potential significant effects
- Task 2 assesses ways to mitigate any significant effects identified
- Task 3 considers any exemptions.

These stages are defined by guidance produced by the Department for Environment, Food and Rural Affairs (DEFRA), Natural England, and additional Welsh governing bodies.

This document will cover Task 1 and produce the HRA Screening report to determine whether the proposed strategy objectives of the LFRMS for Royal Greenwich will have any significant adverse effect on designated areas. The HRA is only required to progress onto Task 2 and 3, if any significant effects are identified in Task 1. This report, alongside the Strategic Environmental Assessment (SEA) will go through a consultation period where the evidence will be reviewed by Natural England (statutory consultee). This process is an iterative procedure, and the outputs will be reviewed accordingly.

## 1.3 HRA Consultation Questions

A requirement of the HRA screening is to consult statutory consultees and allow any other stakeholders or parties to review the outcomes. To fulfil this, a set of questions have been assembled, which align with each chapter and steps taken in this Screening Report. Statutory consultation bodies will be asked to respond to these consultation questions prior to the public consultation phase of this document. A full list of the consultation questions has been included below for completeness.

### Identifying relevant sites

1. Do you feel we have included all the most relevant Natura 2000 sites which may be significantly affected by the implementation of the Local Flood Risk Management Strategy? If not, please state any additional sites which you believe should be included.

2. Do you feel we have included all the relevant information for each of these sites?

### Screening analysis

3. Do you have any comments on the method for the assessment of the HRA sites against the Local Flood Risk Management Strategy strategic objectives?

4. Do you agree with the screening analysis for each of the objectives? If not, please give reasons as to why you would screen a certain objective differently.

### Conclusions and further comments

5. Do you have any comments on the conclusions that we have made in this HRA Screening Report of the Local Flood Risk Management Strategy?

6. Do you have any additional comments or suggestions for this HRA Screening Report?

## 1.4 Local Flood Risk Management Strategy (LFRMS)

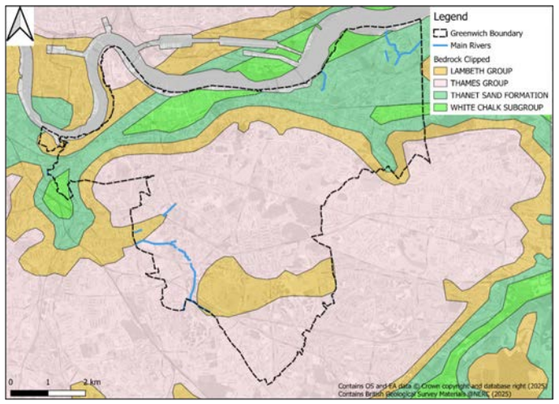
### 1.4.1 LFRMS Summary

Under the **FWMA (2010)**, the council has the role of Lead Local Flood Authority (LLFA) and is responsible for managing local flood risk within the borough. As LLFA, the council are required to produce and maintain the Local Flood Risk Management Strategy (LFRMS) which is updated every 6 years. The purpose of the LFRMS is to outline how the LLFA and other stakeholders will manage flood risk in the borough, including flooding from sources such as surface water, groundwater and ordinary watercourses. The LFRMS sets out the aims and objectives in managing local flood risk within Royal Greenwich.

### 1.4.2 Local Area Information

Royal Greenwich is located in south-east London and shares boundaries with several neighbouring boroughs including Newham, Tower Hamlets, and Barking and Dagenham to the north, across the River Thames. Bexley to the east, Bromley to the South and Lewisham to the south and west. The River Thames forms the boroughs northern boundary and plays a significant role in shaping its flood risk and drainage characteristics.

**Figure 1: Map of Greenwich Geology and Watercourses**




Royal Greenwich is traversed by several watercourses and culverted streams that flow into the Thames. Notably, the River Quaggy, which flows through the Kidbrooke area before discharging into the Thames. The borough's varied topography, urban development, and underlying geology contribute to areas of surface water flood risk, which are managed by the Lead Local Flood Authority (LLFA).

### 1.4.3 LFRMS Strategic Objectives

A list of the council's five LFRMS Strategic Objectives can be found below. They will later be assessed in Section 3 against each of the Natura 2000 sites identified. This will help to distinguish whether the objectives and their associated actions would have an effect on the sites.

**The five objectives of the LFRMS are**

**Objective A -** Improve knowledge and understanding of flood risk within Royal Greenwich

**Objective B -** Maximise sustainability and biodiversity benefits to Royal Greenwich by taking a holistic approach to flood risk management

**Objective C -** Reduce the risk of flooding to the community in Royal Greenwich by delivering targeted flood alleviation schemes (FASs) and encouraging the use of sustainable drainage systems (SuDS)

**Objective D -** Investigate new funding opportunities available to develop flood risk management within Royal Greenwich

**Objective E -** Improve community awareness and preparedness of flood risk within the borough

## 1.5 Consultation Process

This HRA Screening Report has been prepared in accordance with the Conservation of Habitats and Species Regulations (2017), which require authorities to assess whether a plan or project is likely to have a significant effect on a European site, either alone or in combination with other plans or projects.

As a statutory strategy related to water and flood risk management, the council's LFRMS must be screened to determine whether it is likely to have significant effects on any Natura 2000 or European-designated sites, such as Special Areas of Conservation (SACs), Special Protection Areas (SPAs), or Ramsar sites.

This HRA Screening Report must be reviewed by the statutory environmental consultees in England: Natural England, the Environment Agency, and Historic England. As part of this review process, specific consultation questions were included at the end of each relevant section of the report to gather targeted feedback. Responses received from these consultees were considered and used to inform an updated version of the Screening Report.

Following the statutory consultation, a public consultation was held from [consultation start date] to [consultation end date]. During this period, members of the public, internal stakeholders, and external organisations were invited to comment on the report. All relevant feedback has been reviewed, and suggested amendments have been incorporated into the final version of the HRA Screening Report where appropriate. Six HRA-specific consultation questions were posed to the statutory consultees. These are listed in Section 1.3 and referenced throughout the relevant sections of this report.

# 2. Identification of Relevant Sites

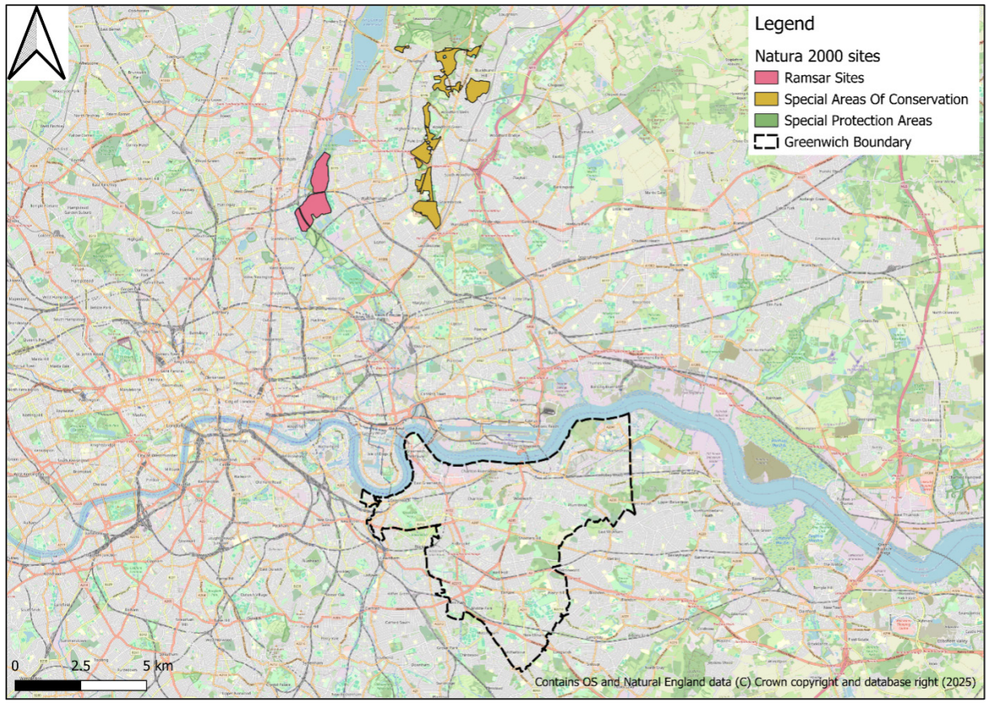
## 2.1 Introduction to the sites

The first stage of the HRA screening process is to identify any Natura 2000 sites within or near Royal Greenwich. This ensures potential effects of the LFRMS Strategic Objectives on nearby Natura 2000 sites are considered. Site data is sourced from Natural England.

## 2.2 Sites within Royal Greenwich

The first step in the HRA Screening process is to identify any Natura 2000 sites within the borough. While there are no Natura 2000 sites located directly within Royal Greenwich, two sites lie nearby and are described in the following section. It is important to consider any sites in close proximity to the borough that may have ecological connections with its natural ecosystems. These particular sites were selected because they are situated within 10 km of Royal Greenwich boundaries.

**Figure 2: Map of the Natura 2000 Sites in Proximity to Royal Greenwich**




## 2.3 Sites in proximity to Royal Greenwich

**Table 2 1: Lee Valley Summary**

| | |
|---|---|
| **Site name** | Lee Valley |
| **Site designation** | SPA and Ramsar |
| **EU code** | UK9012111 |
| **Area (Ha)** | 448 |
| **Qualifying species and/ or habitat features** | **SPA**<br>• Bittern, Botaurus stellaris - A021, nb<br>• Gadwall, Anas strepera - A051, nb<br>• Shoveler, Anas clypeata - A056, nb<br>**Ramsar**<br>• Gadwall, Anas strepera - Wintering<br>• Shoveler, Anas clypeata - Wintering<br>• Water boatman, Micronecta minutissima<br>• Whorled water-milfoil, Myriophyllum verticillatum |
| **General site character** | • Bogs, Marshes, Water fringed vegetation, Fen (4%)<br>• Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) (1%)<br>• Inland water bodies (Standing water, Running wate (67%)<br>• Humid grassland, Mesophile grassland (8%)<br>• Improved grassland (10%)<br>• Broad-leaved deciduous woodland (10%) |
| **Current pressure and/or threats** | • Water pollution, affecting A021, A051 and A056<br>• Hydrological changes, affecting A021, A051 and A056<br>• Public access / disturbance, affecting A021, A051 and A056<br>• Inappropriate scrub control, affecting A021, A051 and A056<br>• Fisheries: fish stock, affecting A021, A051 and A056<br>• Invasive species, affecting A021, A051 and A056<br>• Inappropriate cutting / mowing, affecting A021<br>• Air pollution (impact of atmospheric nitrogen deposition), affecting A021 |
| **Supplementary evidence** | Standard Data Form - UK9012111<br>Site Improvement Plan – Lee Valley |

**Table 2 2: Epping Forest Summary**

| | |
|---|---|
| **Site name** | Epping Forest |
| **Site designation** | SAC |
| **EU code** | UK0012720 |
| **Area (Ha)** | 1630.74 |
| **Qualifying species and/ or habitat features** | • H4010 Northern Atlantic wet heaths with Erica tetralix<br>• H4030 European dry heaths<br>• H9120 Atlantic acidophilous beech forests with Ilex<br>• S1083 Stag beetle, Lucanus cervus |
| **General site character** | • Inland water bodies (Standing water, Running water) (6%)<br>• Bogs, Marshes, Water fringed vegetation, Fens (0.2%)<br>• Heath, Scrub, Maquis and Garrigue, Phygrana (3.8%)<br>• Dry grassland, Steppes (20%)<br>• Broad-leaved deciduous woodland (70%) |
| **Current pressure and/or threats** | • Air pollution (impact of atmospheric nitrogen deposition), affecting H4010, H4030 and H9120<br>• Under grazing, affecting H4010 and H4030<br>• Public access / disturbance, affecting H4010, H4030 and H9120<br>• Changes in species distributions, affecting H9120<br>• Inappropriate water levels, affecting H4010<br>• Water pollution, affecting H4010<br>• Invasive species, affecting H4010 and H9120<br>• Disease, affecting H9120 |
| **Supplementary evidence** | Epping Forest - SAC<br>Site Improvement Plan – Epping Forest |

## 2.4 Classified Site Consultation Questions

1. Do you feel we have included all of the most relevant Natura 2000 sites which may be significantly affected by the implementation of the Local Flood Risk Management Strategy? If not, please state other sites which you believe we have missed?

2. Do you feel we have included all relevant information for these sites?

# 3. Screening Analysis

## 3.1 Screening Analysis Summary

The screening analysis will assess each of the proposed LFRMS strategic objectives in relation to the sites near Royal Greenwich, as identified in Section 2.3. An adverse effect may be considered likely if any of the following occur:

- disruption to natural processes that support the site's designated features
- reduction in the extent or quality of designated habitats or species
- limitation of future potential to restore designated habitats or species.

Section 3.3 will then present evidence to support the screening judgments, ultimately determining whether each objective can be excluded from further assessment under the Habitats Regulations Assessment (HRA) process.

## 3.2 Screening Analysis

Table 3 1 summarises the outcomes of the screening for each strategic objective against the relevant sites. The criteria used in this assessment are detailed in Table 3.2. Based on this analysis, none of the LFRMS strategic objectives are anticipated to have any effect on the two Natura 2000 sites located near Royal Greenwich.

**Table 3 1: Scoring Matrix for Table 3-2**

| Symbol | Meaning |
|---|---|
| ++ | Major positive effect on HRA Site |
| + | Minor positive effect on HRA Site |
| 0 | Neutral effect on HRA Site and/or dependent on implementation. |
| - | Minor negative effect on HRA Site. |
| - - | Major negative effect on HRA Site |
| ? | Uncertain. |

**Table 3 2: Scoring matrix of LFRMS strategy objectives against HRA outcome criteria**

| | | HRA Site | |
|---|---|---|---|
| | | Lee Valley | Epping Forest |
| **LFRMS Strategy Objective** | A | + | + |
| | B | + | + |
| | C | + | + |
| | D | 0 | 0 |
| | E | + | + |

## 3.3 Screening Analysis Outcome

### 3.3.1 LFRMS Strategic Objective A: Improve knowledge and understanding of flood risk within Royal Greenwich

LFRMS Strategic Objective A is unlikely to have any negative effects on the European Sites. The objective's focus is to improve the knowledge and understanding of the different risks of flooding to the borough. The improved understanding and knowledge of flood risk may help avoid unintended hydrological changes or pollution pathways that could degrade the Natura 2000 sites. It could also support better water management and avoid stress on water dependent habitats. Consequently, the LFRMS strategy's objective A can be screened out at this stage of the HRA.

### 3.3.2 LFRMS Strategic Objective B: Maximise sustainability and biodiversity benefits to Royal Greenwich by taking a holistic approach to flood risk management through the use of natural flood management (NFM)

LFRMS Strategic Objective B is unlikely to have any negative impacts on the European sites. The objective's aim is to proactively encourage sustainable solutions for local flood risk management which also account for climate change. Through more sustainable solutions to managing local flood risk management, the local Natura 2000 sites are likely to benefit from less emission heavy, hard engineering flood management approaches. Furthermore, through taking climate change into consideration, it is more likely that local flood risk management in Royal Greenwich will remain sustainable in the future and minimise the potential for future flood related impacts to European sites. Therefore, this LFRMS strategic objective has been screened out at this stage of the HRA.

### 3.3.3 LFRMS Strategic Objective C: Reduce the risk of flooding to the community in Greenwich by delivering targeted flood alleviation schemes (FASs) and encouraging the use of sustainable drainage systems (SuDS)

LFRMS Strategic Objective C is unlikely to have any negative effects on the European Sites identified. The objective focuses on delivering targeted flood

alleviation schemes and promoting sustainable drainage systems (SuDS) to reduce flood risk within Royal Greenwich. While the implementation of physical infrastructure has the potential to affect nearby habitats, the emphasis on sustainable and targeted interventions, such as SuDS, suggests a low likelihood of adverse effects on the integrity of nearby Natura 2000 sites. SuDS approaches, including permeable surfaces, rain gardens, and swales, can also support water quality improvements and natural hydrological processes, which may provide indirect benefits to water-dependent designated features. Provided these interventions are appropriately located and designed in line with best environmental practice, no likely significant effects are anticipated. As such, LFRMS Strategic Objective C can be screened out at this stage of the HRA.

### 3.3.4 LFRMS Strategic Objective D: Investigate new funding opportunities available to develop flood risk management within Royal Greenwich.

This strategic objective is administrative in nature and does not involve any physical works or changes to land use. Its purpose is to identify and secure funding for future flood risk management measures within the borough. As this objective does not directly or indirectly interact with any environmental receptors, including European Sites, it is considered to have no effect on site integrity, either alone or in combination with other plans or projects. Therefore, LFRMS Strategic Objective D is screened out at this stage of the HRA.

### 3.3.5 LFRMS Strategic Objective E: Improve community awareness and preparedness of flood risk within the borough

LFRMS Strategic Objective E seeks to increase public awareness of flooding and empower communities to take appropriate action to reduce risk. This includes outreach, education campaigns, and the dissemination of flood preparedness resources. This objective does not involve any physical interventions or policy changes that could affect the condition or functioning of European Sites. While improved awareness could lead to better environmental stewardship over time, any such benefits would be indirect. As such, the objective is considered to have a positive effect on the identified Natura 2000 sites and can be screened out at this stage of the HRA.

## 3.4 Screening Analysis Consultation Questions

3. Do you have any comments on the method for the assessment of the HRA sites against the Local Flood Risk Management Strategy strategic objectives?

4. Do you agree with the screening analysis for each of the objectives? If not, please give reasons as to why you would screen a certain objective differently

# 4. Conclusions and Next Steps

## 4.1 Conclusions

Following the screening analysis section of the HRA, it is evident that none of the proposed LFRMS Strategic Objectives will impose negative effects to the identified Natura 2000 sites. In contrast, the strategic objectives have been shown to have both direct and indirect benefits to the European sites, either through enhancing or offering further protection to the Natura 2000 sites. Therefore, it has been concluded that the HRA for the LFRMS does not require progression onto any further appropriate assessment stages and will not require a full HRA.

The LFRMS will be subject to an internal review on an annual basis, and a comprehensive public review every six years. As part of this review process an updated HRA screening will be carried out. Should any potential negative environmental impacts be identified in future updates of the LFRMS, a full HRA will be undertaken, and alternative measures will be proposed to mitigate any such impacts.

## 4.2 Final Consultation Questions:

5. Do you have any comments on the conclusions that we have made in this HRA Screening Report of the Local Flood Risk Management Strategy?

6. Do you have any additional comments or suggestions for this HRA Screening Report?

# Appendix D - Strategic Environmental Assessment Report

## Executive Summary

**The council, as the Lead Local Flood Authority (LLFA), is responsible for developing, maintaining, applying and monitoring a Local Flood Risk Management Strategy (LFRMS) for the Borough. In line with statutory requirements, a Strategic Environmental Assessment (SEA) must be undertaken when a new strategy is proposed, to ensure that it does not result in any adverse environmental impact.**

The SEA process is comprised of five stages. This document represents Stage A, the SEA Screening Report. The purpose of this screening is to assess whether the implementation of the LFRMS and its associated Action Plan is likely to have significant environmental effects, thus determining whether a full SEA is required.

This Screening Assessment evaluated the potential impact of each strategic objective of the LFRMS against a set of SEA objectives, developed to reflect key environmental priorities within Royal Greenwich. The SEA objectives are as follows:

- SEA 1: Ensure all of Royal Greenwich's critical infrastructure has sufficient protection from flooding
- SEA 2: Ensure Royal Greenwich's increasing population is adequately housed, with flood risk prioritised within developments
- SEA 3: Ensure vulnerable residents and residents in deprived areas have access to the services and resources needed before, during, and after a flooding event
- SEA 4: Promote air and water quality improvement through flood risk interventions
- SEA 5: Promote sustainable development to reduce and mitigate the potential impacts of climate change, therefore improving resilience to flooding events and improving biodiversity and amenity
- SEA 6: Safeguard cultural and heritage assets and ensure they are made resilient to flooding, without affecting the integrity of the asset
- SEA 7: Improve the status of all WFD waterbodies within the borough, where possible.

These SEA objectives were informed by a review of current environmental challenges and opportunities within Royal Greenwich, based on a comprehensive analysis of baseline data. This included:

- biodiversity, flora, and fauna
- infrastructure assets
- public health
- air quality
- climate factors
- population
- soil and water
- historic and cultural environment.

This assessment concluded that the implementation of the LFRMS is unlikely to have any negative effects on the environment. The implementation of the LFRMS is expected to generate positive outcomes across the SEA objectives, with some neutral impacts identified.

Therefore, this Screening Report demonstrates that the LFRMS has appropriately considered the environmental results of implementing its actions within Royal Greenwich. As a result, it is not required to progress the LFRMS to the second stage of the SEA process.

# Contents



# Figures and Tables



# Acronyms and Abbreviations

**Table 1 1: Acronyms and Abbreviations**

| Abbreviation | Definition |
|---|---|
| **AQS** | Air Quality Strategy |
| **BNG** | Biodiversity Net Gain |
| **EA** | Environment Agency |
| **FWMA** | Flood and Water Management Act (2010) |
| **HRA** | Habitats Regulation Assessment |
| **LFRMS** | Local Flood Risk Management Strategy |
| **LLFA** | Lead Local Flood Authority |
| **NO2** | Nitrogen Dioxide |
| **ONS** | Office for National Statistics |
| **PM** | Particulate Matter |
| **RMA** | Risk Management Authority |
| **SEA** | Strategic Environmental Assessment |
| **SINC** | Site of Importance for Nature Conservation |
| **SuDS** | Sustainable Drainage Systems |
| **WFD** | Water Framework Directive (2000) |

# 1. Introduction

## 1.1 Purpose of Screening

The purpose of a Strategic Environmental Assessment (SEA) is to ensure a high level of environmental protection by evaluating the potential environmental impacts of a proposed plan or programme at an early stage of development. This process supports the goal of promoting sustainable development. The European SEA Directive (2001) was adopted by UK law in 2004 and is implemented through the Environmental Assessment of Plans and Programmes Regulations 2004. Under these regulations, an SEA report must be prepared and made publicly available, outlining and assessing the likely significant environmental impacts of implementing a plan or programme.

The purpose of this SEA Screening Report is to clearly identify and understand the potential environmental impacts arising from the objectives and associated actions outlined in the Local Flood Risk Management Strategy (LFRMS) and its associated Action Plan. Through this screening process, an informed decision on whether the LFRMS requires a full SEA can be determined.

## 1.2 Methodology

There are five stages to a SEA, each with specific objectives and tasks. These are summarised in Table 1 1. This document is the main outcome from Stage A. Progression onto the following stages is only required if potential significant environmental impacts are identified at this Screening Stage.

**Table 1.1: SEA Stages and Tasks Description**

| | SEA Stages | SEA Tasks |
|---|---|---|
| Screening Stage | **Stage A: Setting the context and objectives, establishing the baseline, and deciding on the scope.** | A1: Identifying other relevant policies, plans and programmes and environmental protection objectives.<br>A2: Collecting baseline information.<br>A3: Identifying environmental issues and problems.<br>A4: Developing the SEA objectives and framework.<br>A5: Consulting on the scope of the SEA. |
| Full Assessment Stage | **Stage B: Developing and refining options and assessing effects.** | B1: Testing the plan objectives against SEA objectives.<br>B2: Developing strategic alternatives.<br>B3: Predicting the effects of the plan, including alternatives.<br>B4: Evaluating the effects of the plan, including alternatives.<br>B5: Mitigating adverse effects.<br>B6: Proposing measures to monitor the environmental effects of implementing the plan. |
| | **Stage C: Prepare the sustainability appraisal report.** | C1: Preparing the environmental report. |
| | **Stage D: Consulting on the draft strategy and the SEA report.** | D1: Consulting on the draft strategy and environmental report with the public and consultation bodies.<br>D2: Assessing significant changes.<br>D3: Making decisions and providing information. |
| | **Stage E: Monitoring the significant effects of implementing the strategy.** | E1: Developing aims and methods for monitoring.<br>E2: Responding to adverse effects. |

## 1.3 SEA Consultation Questions

The SEA Screening Report requires review by statutory consultees. To fulfil this, a set of consultation questions have been developed for each task of this SEA. Statutory consultation bodies will be asked to respond to these consultation questions prior to the public consultation phase of this document. A full list of the consultation questions has been included below for completeness.

### Task A1: Legislation, plan and policies

1. Do you feel we have included all relevant policies, documents, plans and legislation that relate to or could affect the Local Flood Risk Management Strategy?

2. If not, which policies do you think have been overlooked?

### Task A2: Baseline data

3. Do you agree that the baseline data we have included herein is appropriate to the Local Flood Risk Management Strategy that is being developed?

4. Do you have, or know of, any additional baseline indicators or data that should be added into this SEA screening assessment?

5. As far as you are aware, is the baseline data correct?

### Task A3: Environmental issues affecting the borough

6. Do you agree that these are the main environmental issues relating to the strategy affecting Royal Greenwich?

7. Are there any other environmental issues that you believe should be added into this SEA? If so, please give details.

8. Do you believe that any of these environmental issues do not affect Royal Greenwich? If so, please give details.

### Task A4: Proposed SEA objectives

9. Do you agree that these proposed SEA objectives are suitable in the context of Royal Greenwich?

10. Are there any other SEA objectives that you believe should be included? If so, please give details.

### Task A5: SEA methodology

11. Do you have any comments on the proposed method for the assessment of the SEA objectives against the Local Flood Risk Management Strategy objectives and actions?

12. Do you agree with the screening analysis of each of the Local Flood Risk Management Strategy strategic objectives? If not, please give reasons as to why you would screen a certain objective differently.

### Conclusion and further comments

13. Do you have any comments on the conclusions that we have made in this SEA screening report of the Local Flood Risk Management Strategy?

14. Do you have any additional comments or suggestions for this SEA screening report?

## 1.4 Local Flood Risk Management Strategy (LFRMS)

The council has the role of Lead Local Flood Authority (LLFA) under the Flood and Water Management Act (2010) (FWMA). The role of LLFA entails the statutory responsibility to develop, maintain, and apply a LFRMS. This sets out the borough's aims and objectives in managing local flood risk.

### 1.4.1 Local Area Information

Royal Greenwich is located in south-east London and shares boundaries with several neighbouring boroughs including Newham, Tower Hamlets, and Barking and Dagenham to the north, across the River Thames. Bexley to the east, Bromley to the South and Lewisham to the south and west. The River Thames forms the boroughs northern boundary and plays a significant role in shaping its flood risk and drainage characteristics. The River Thames forms the borough's northern boundary and plays a significant role in shaping its flood risk and drainage characteristics.

Royal Greenwich is traversed by several watercourses and culverted streams that flow into the Thames. Notably, the River Quaggy, which flows through the Kidbrooke area before discharging into the Thames. The borough's varied topography, urban development, and underlying geology contribute to areas of surface water flood risk, which are managed by the Lead Local Flood Authority (LLFA). In addition, the council collaborates with neighbouring boroughs and other risk management authorities to effectively manage and reduce flood risk across administrative boundaries.

### 1.4.2 LFRMS Strategic Objectives

**The five objectives of the LFRMS are**

**Objective A -** Improve knowledge and understanding of flood risk within Royal Greenwich

**Objective B -** Maximise sustainability and biodiversity benefits to Royal Greenwich by taking a holistic approach to flood risk management

**Objective C -** Reduce the risk of flooding to the community in Royal Greenwich by delivering targeted flood alleviation schemes (FASs) and encouraging the use of sustainable drainage systems (SuDS)

**Objective D -** Investigate new funding opportunities available to develop flood risk management within Royal Greenwich

**Objective E -** Improve community awareness and preparedness of flood risk within the borough

These objectives are assessed against the identified SEA objectives as part of the screening analysis in Section 6.

## 1.5 Consultation Process

Under Article 3 of the European SEA Directive (2001), Strategic Environmental Assessments (SEAs) are mandatory for any local plan, programme, or strategy that relates to topics such as water management. As a statutory strategy, the council's LFRMS therefore requires a SEA. In addition, completing this SEA satisfies the requirements of the FWMA, which states that the LFRMS must demonstrate how it supports broader environmental objectives.

This SEA Screening Report must be reviewed by the statutory environmental consultees: the Environment Agency, Natural England, and Historic England. As part of this review, the consultees were provided with consultation questions included at the end of each section of the report. Their feedback was considered and used to inform an updated version of the document.

Following this, a public consultation was held from [consultation start date] to [consultation end date], during which members of the public, internal stakeholders, and external organisations were invited to comment on the report. Suggested amendments received during this process will be reviewed and incorporated into the final version of the document where appropriate.

# 2. Identification of Relevant Policies

## 2.1 Task A1

Task A1 is to identify relevant policies, plans, and programmes and environmental protection objectives. This has been completed by collating all appropriate policies, documents, and legislation that have the potential to affect or influence the LFRMS in relation to the SEA's purpose.

## 2.2 Relevant Policies

It is important to consider relevant policies and legislation at a range of levels including international, national, regional, and local. These policies are presented below in Table 2 1.

**Table 2.1: Relevant Policies, documents, plans and legislation to the SEA**

| |
|---|
| **International** |
| UNESCO World Heritage Convention (1972) |
| Convention for the Protection of the Architectural Heritage of Europe (1985) |
| EU Habitats Directive (1992) |
| The Valletta Treaty (formally European Convention on the Protection of Archaeological Heritage) (1992) |
| EU Water Framework Directive (2000) |
| European Landscape Convention (2000) |
| European SEA Directive (2001) |
| EU Floods Directive (2007) |
| EU Birds Directive (2009) |
| EU Biodiversity Strategy for 2030 (2020) |
| **National** |
| Ancient Monuments & Archaeological Areas Act (1979) |
| Wildlife and Countryside Act (1981) |
| Environmental Protection Act (1990) |
| Planning (Listed Buildings & Conservation Areas) Act (1990) |
| Land Drainage Act (1991) |
| The UK Biodiversity Action Plan (1994) |
| Civil Contingencies Act (2004) |
| Natural Environment and Rural Communities Act (2006) |
| The Pitt Review - Lessons learned from the 2007 summer floods (2007) |
| The SuDS Manual C753F (2015) |
| Climate Change Act (2008) |
| Future Water: The Government's Water Strategy for England (2008) |
| Flood Risk Regulations (2009) |
| Flood and Water Management Act (2010) |
| Biodiversity 2020: A strategy for England's wildlife and ecosystem services (2011) |
| National standards for sustainable drainage systems (SuDS) - GOV.UK (2025) |
| Environmental Permitting Regulations (2016) |
| DEFRA: 25 Year Environment Plan (2018) |

| |
|---|
| National Flood and Coastal Erosion Risk Management (FCERM) Strategy for England (2020) |
| Meeting our Future Water Needs: A National Framework for Water Resources (2020) |
| Environment Act (2021) |
| National Planning Policy Framework (2012, revised 2021) |
| National Planning Practice Guidance (2016, revised 2022) |
| **Regional** |
| Thames Catchment Flood Risk Management Plan (2009) |
| Mayor of London's Climate Change Adaptation Strategy (2011) |
| Thames Estuary 2100 Flood Risk Management Plan (2012) |
| Thames River Basin District, River Basin Management Plan (2015) |
| London Regional Flood Risk Appraisal (2018) |
| London Environment Strategy (2018) |
| Zero carbon London: A 1.5°C compatible plan (2018) |
| The London Plan (2021) |
| Thames Estuary 2100: 10-Year Review (2022) |
| Thames Estuary 2100 Plan (2023) |
| **Local** |
| Strategic flood risk assessment Greenwich \| Royal Borough of Greenwich (2017) |
| Biodiversity Action Plan \| Royal Borough of Greenwich |
| Local Plan Climate Change and Carbon Reduction Topic Report |
| The Local Plan \| Royal Borough of Greenwich (2014) |
| Royal Borough of Greenwich Air Quality Action Plan 2023-2027 |
| New LFRMS Strategy |

## 2.3 Task A1 consultation questions

Based on the screening analysis conducted, questions shall be asked during the consultation exercise as shown below.

1. Do you feel we have included all relevant policies, documents, plans and legislation that relate to or could affect the LFRMS?

2. If not, which additional documentation do you think should be included?

# 3. Baseline Information

## 3.1 Task A2 Summary

Task A2 involves collecting baseline information from a range of sources to identify any key environmental, social, and economic issues that may exist in Royal Greenwich. The focus of the SEA is on environmental effects; however, social and economic information has been included to widen the scope of potential impacts being considered.

The SEA should be proportional to the length of the LFRMS. As a result, baseline information that directly affects flood risk and/or those likely to influence the environmental issues highlighted within this SEA Screening Report have been included.

## 3.2 Royal Greenwich Characteristics

Royal Greenwich is a south-east London borough, covering an area of 4,730 hectares. This area is comprised of a mix of urban centres, residential neighbourhoods, historic landmarks, open green space, and the riverside along the Thames.
Royal Greenwich is well known for its maritime heritage, with its main metropolitan centre in Greenwich town centre. Royal Greenwich is home to several Strategic Industrial Locations (SILs), notably Charlton Riverside and Woolwich, which are key to the borough's employment and economic developments that include housing, public amenities, and commercial spaces.

The borough also benefits from substantial green infrastructure, including Metropolitan Open Land (MOL), local parks, and green corridors that support biodiversity and contribute to residents' wellbeing. Parks such as Greenwich Park, Oxleas Wood, Maryon Park, and Sutcliffe Park provide valuable recreational space and help support climate resilience. Royal Greenwich contains 55 Sites of Importance for Nature Conservation (SINCs), protecting key habitats across the borough, many of which are supported through local planning and conservation initiatives.

Transport links in Royal Greenwich are extensive, with several major roads, including the A2, A206 and A102 Blackwall Tunnel Approach providing road connectivity across the borough. Public transport is served by Southeastern rail, the Docklands Light Railway (DLR), Thameslink service, and the Elizabeth Line, connecting town and district centres to central London and beyond. The borough also benefits from river transport via Thames Clippers and a growing network of walking and cycling routes.

## 3.3 Baseline Information

### 3.3.1 Biodiversity, Flora and Fauna

Royal Greenwich has a distinct and diverse mix of habitats and species, which are found within its woodlands, meadows, parks, green corridors, and public gardens. Many of these areas have remained relatively undisturbed, serving as refuges from surrounding urban development. While several species have adapted to the pressures of the urban environment and do not require specialised habitats, others are more sensitive to human disturbances. Through the Borough's Biodiversity Action Plan, six priority habitats were identified:

- acid grassland and heathland
- gardens
- parks and green spaces
- wasteland
- waters' edge, rivers, ponds and wetland
- woodland.

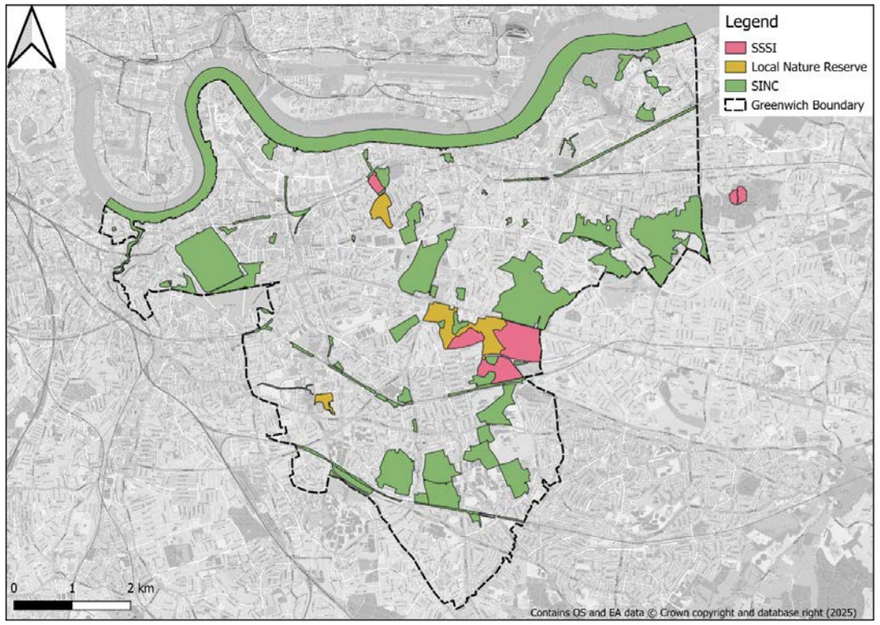
Priority species were also identified for the borough, compromising of bats, black poplar, black redstart, hedgehog, stag beetle and water voles.

Royal Greenwich has 5 nature reserves and 57 SINCs (Appendix A), along with two Sites of Special Scientific Interest (SSSIs) (Figure 1). The table below lists the SSSI, Nature Reserves and some of the largest SINCS within Royal Greenwich.

**Table 3.1: Green Spaces Designations in Royal Greenwich**

| Designation | Number of Sites | Site Names |
|---|---|---|
| **Sites of Special Scientific Interest** | 2 | • Gilberts Pit<br>• Oxleas Woodlands |
| **Local Nature Reserves** | 5 | • Lesnes Abbey Woods<br>• Maryon Wilson Park<br>• Gilberts Pit<br>• Oxleas Wood<br>• Sutcliffe Park |
| **Sites of Importance of Nature Conservation** | 57 | Including:<br>• The River Thames and tidal tributaries<br>• Blackheath and Greenwich Park<br>• Shrewsbury Park, Shooters Hill Golf Course, Dothill Allotments and Woodlands Farm |

**Figure 1: Green Spaces Designations within Royal Greenwich**




### 3.3.2 Infrastructure Assets

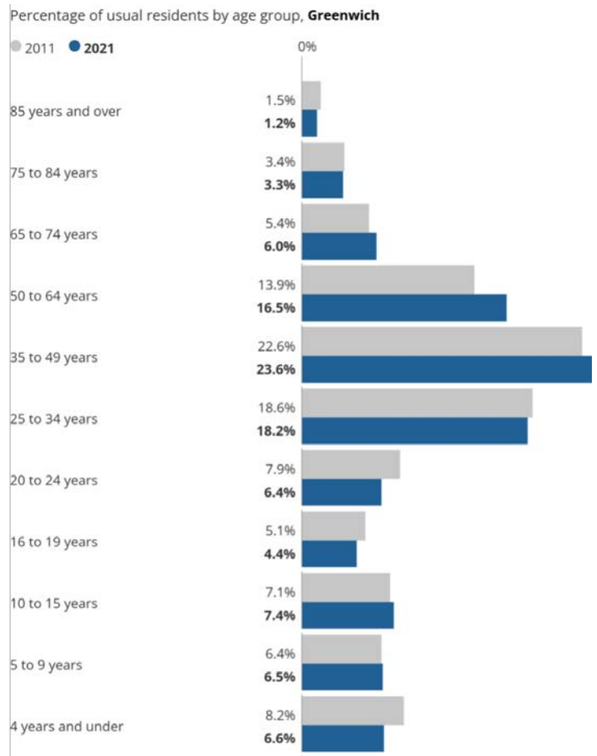
Royal Greenwich benefits from strong transport connections, including National Rail Services, the Docklands Light Railway (DLR), and the London Underground's Jubilee Line at North Greenwich. It is also served by an extensive bus network and major roads such as the A2, A102, and the A205. Recent improvements, including the introduction of the Elizabeth Line at Woolwich station, have enhanced travel options across the borough and beyond. While sustainable travel options like walking, cycling, and public transport are increasingly popular, some parts of the borough, particularly in the south and east, remain less well connected.

Royal Greenwich offers a diverse range of community facilities covering health, education, leisure, culture, and sport, providing valuable services to residents and visitors. The borough's Local Plan highlights the importance of parks and open spaces as key components of community infrastructure, with over 150 parks and open spaces within the borough, including Greenwich Park and Oxleas Wood. Many of these sites are publicly accessible and play a crucial role in supporting the wellbeing and ecological diversity of the borough.

### 3.3.3 Population

In the most recent ONS census in March 2021, Royal Greenwich experienced a 13.6% population increase, with the local population totalling 289,100. In 2021, the area was among the top 10% most densely populated Local Authority areas in England. Royal Greenwich has a median age of 35 years old; this is a similar median age to London but a lower median age in comparison to England.

**Figure 2: Royal Greenwich age profile from the 2011 and 2021 ONS Census**




Source: Office for National Statistics – 2011 Census and Census 2021

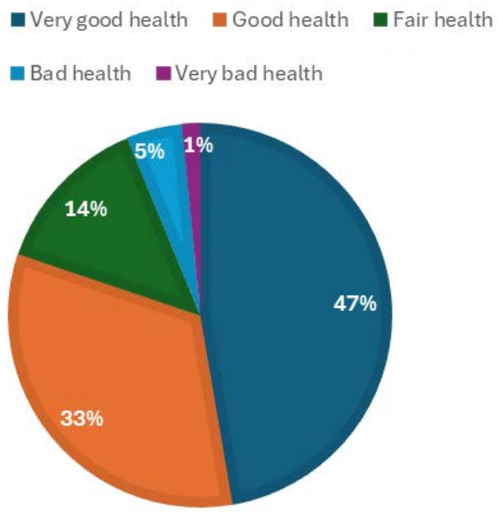
Royal Greenwich has slightly more female residents (51.4%) than male (48.6%). Royal Greenwich has around a 50% White British population, along with significant Black African and Black Caribbean populations, and growing communities of people of Asian heritage.

Population growth in Royal Greenwich drives the need for new housing development to meet local demand. According to the council's Local Plan and Housing Needs Assessment (2023), the borough requires around 2,300 new homes per year between the period of 2025-2038. Due to limited availability of greenfield land, much of this development will need to focus on regeneration and redevelopment of previously developed sites, including brownfield land, to accommodate future housing needs sustainably.

### 3.3.4 Public Health

The ONS 2021 census disclosed that 75% of Royal Greenwich residents described their health as 'very good' or 'good', 13.6% of residents described their health as 'fair'. 4.7% described their health as 'bad' and 1.5% as 'very bad'. The proportion of residents in fair, bad or very bad health (19.8%) was above that of England and Wales (17.9%).

**Figure 3: Pie Chart of Public Health in Royal Greenwich (ONS 2021 Census)**




The average life expectancy in Royal Greenwich is about 79.5 years for males and 83 years for females, very similar to the England averages. However, there are inequalities in life expectancy, with male life expectancy being 5.5 years lower in the most deprived areas. Female life expectancy has around a 6-year gap between those in the least and most deprived areas.

### 3.3.5 Air Quality

The UK Clean Air Strategy (2019) provides the national framework for air quality management and sets legal objectives to protect human health. The council's Air Quality Action Plan (2023-2027) sets out the borough's priorities for improving air quality. Royal Greenwich currently meets all national air quality objectives except for Nitrogen Dioxide (NO2) at a few locations, such as Plumstead Road, where annual mean levels exceed the UK objective of 40µgm3. The borough meets the national objectives for Particulate Matter (PM10 and PM2.5). However, the UK legal limit for PM2.5 is significantly higher than the World Health Organisations recommended guidelines. This means that the council retains a duty to aim towards lowering PM2.5 concentrations across the borough.

The council has declared the entire borough as an Air Quality Management Area (AQMA) since 2001 due to exceedance of both NO2 and PM10. The council operate a network of 10 real-time monitoring stations and over 50 diffusion tubes, informing targeted action. Priority zones are generally located along major transport corridors, including the A2, A206, A102 and areas surrounding Charlton and Greenwich town centres, all of which experiences high volumes of traffic and subsequent elevated pollution levels.

The Air Quality Action Plan outlines a comprehensive set of measures, including promoting active travel, enhancing infrastructure for electric vehicles, implementing controls in planning for cleaner development, improving green infrastructure, and targeting emissions around schools and transport hubs to reduce exposure in the most impacted areas.

### 3.3.6 Climate Change

The 2023 Synthesis Report from the Intergovernmental Panel on Climate Change (IPCC) warns that global temperatures are likely to rise by 1.5 °C within this century due to human-induced greenhouse gas emissions. One of the key consequences of this warming is an increase in the frequency and severity of heavy rainfall events, which is expected to heighten the risk of flooding from various sources. This will put additional strain on public health, infrastructure, and the natural environment.

Royal Greenwich, like much of London, is particularly exposed to the urban heat island effect, where built-up areas absorb and retain heat more than surrounding rural areas. As extreme heat becomes more common, risks to human health grow. Higher temperatures can also lead to rail tracks to buckle leading to major disruptions.

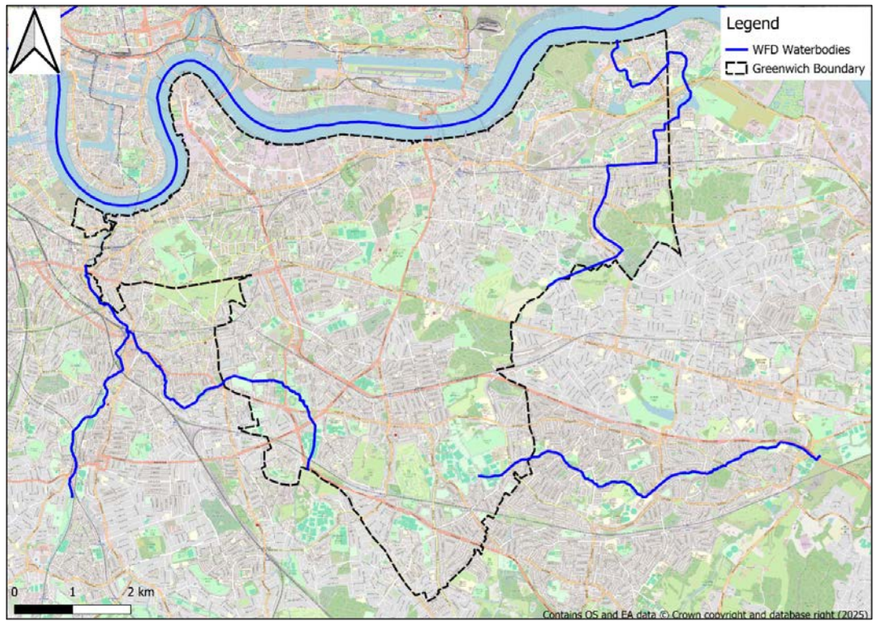
In recognition of the growing climate emergency, in 2019 the council made a formal commitment to reach net zero carbon emissions for its own operations by 2025 and to become a net zero carbon borough by 2045 or sooner. This pledge is part of a broader ambition to build a greener, cleaner, more climate-resilient future for those who live and work in the borough.

### 3.3.7 Water Environment

Royal Greenwich's natural topography generally slopes northward and eastward towards the River Thames, influencing the movement of surface water, which typically drains in the same direction. This flow pattern plays an important role in local surface water runoff and flood risk, particularly during heavy rainfall.

The management and assessment of water quality across the borough falls under the EU Water Framework Directive (WFD), which classifies bodies of water according to ecological and chemical health. Each watercourse is also assessed based on the degree to which it has been physically modified from its natural state. In Royal Greenwich, the key water bodies, including the Thames, Ravensbourne, Quaggy and Shuttle rivers are classified as 'heavily modified' and are currently rated below the target standards for ecological and chemical status.
These classifications highlight ongoing challenges around water quality, habitat condition, and pollution control.

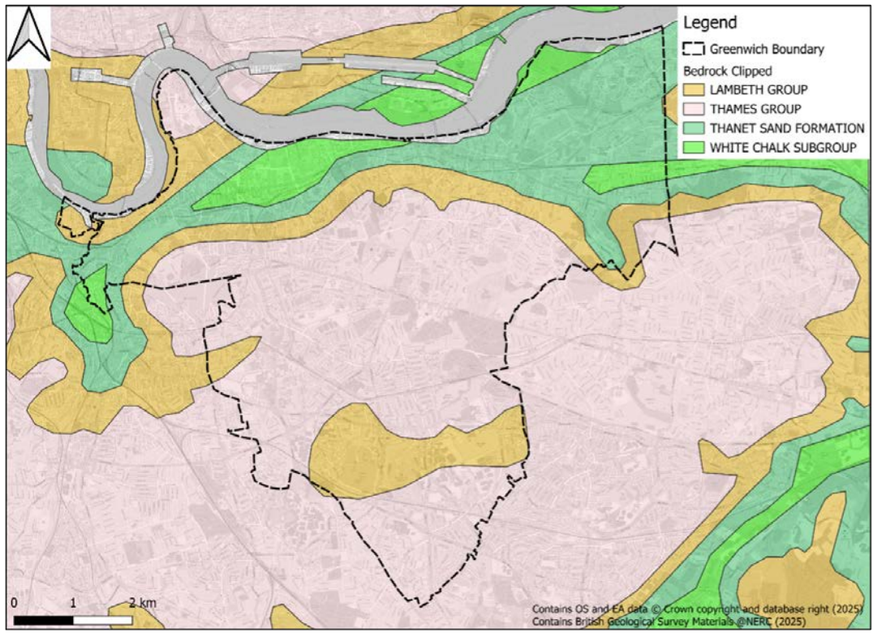
**Figure 4: WFD Waterbodies Within Royal Greenwich**



### 3.3.8 Soils and Geology

The borough sits mainly atop the London Clay formation. London Clay bedrock is characterised by low permeability, meaning water does not pass through it easily. As a result of this, it has limited significance as a groundwater resource. In some parts of the borough closer to the Thames, other geological layers such as the Lambeth Group and Thanet Sand Formation are present. These formations can vary in their capacity to store and transmit water, with some layers acting as minor aquifers.

**Figure 5: Bedrock of Royal Greenwich**




Above the bedrock, the borough's superficial deposits include alluvium (loose soil and sediment, typically deposited by rivers) particularly along the Thames and in lower lying areas. This alluvium has mixed permeability, meaning it may either hold or transmit water dependent on its composition. Areas with sand and gravel deposits are more permeable and can more readily absorb and transmit water, influencing groundwater recharge and drainage characteristics.

### 3.3.9 Historic and Cultural Environment

Royal Greenwich is home to a diverse range of heritage assets that contribute to the borough's distinctive historic and cultural character. These heritage assets are catalogued by Historic England and the council, and their locations can be explored on the Historic England map. Found at [Historic England](#).

Heritage assets in the borough are broadly categorised as the following:

Designated Heritage Assets - These include World Heritage Sites, Scheduled Monuments, Listed Buildings (Grades I, II* AND II), Registered Parks and Gardens, Conservation areas, and London Squares designated under relevant legislation.

Non-Designated Heritage Assets - These consist of buildings and structures of local significance identified by the Council or Mayor of London, such as Locally Listed Buildings and other heritage assets without statutory protection but with local importance.

**Table 3.2: Heritage Assets within Royal Greenwich**

| Heritage Asset Type | Amount | Examples of Assets |
|---|---|---|
| **World Heritage Site** | 1 | • Maritime Greenwich |
| **Scheduled Monuments** | 12 | • Bellot Memorial<br>• Conduit Head |
| **Conservation Areas** | 23 | • Greenwich<br>• Woolwich Common |
| **Registered Parks and Gardens** | 12 | • Greenwich Park |
| **Statutory Listed Buildings** | 146 areas or 534 individual buildings | • Academy Road<br>• Calderwood Street<br>• Greenwich Market |
| **Locally Listed Buildings and Structures** | Over 500 | • Guildford Arms Public House<br>• Woolwich Public Baths<br>• Blackheath Gate Lodge |

In addition to its heritage assets, Royal Greenwich has a strong cultural and economic identity shaped by its local markets, creative industries, and active night-time economy. Key markets include Greenwich market, Woolwich market, and Eltham Market, which provide a platform for local businesses and community interaction.

Cultural and entertainment hubs such as Greenwich Town Centre, Woolwich, and Eltham offer a range of theatres, galleries, music venues, and restaurants. Notable venues include the O2 Arena, Greenwich Theatre, Tramshed Arts Centre, and a number of historic pubs and live performance spaces. Together, these amenities support a growing arts and cultural scene that reinforces the boroughs identity as a creative and historic destination.

## 3.4 Task A2 Consultation Questions

3. Do you agree that the baseline data included herein is appropriate to the LFRMS that is being developed?

4. Do you have, or know of, any additional baseline indicators or data that should be incorporated into this SEA screening assessment?

5. As far as you are aware, is the baseline data accurate and up to date?

# 4. Identification of Environmental Issues

## 4.1 Task A3 Summary

Task A3 involves identifying existing or potential future environmental issues that could affect, or be affected by, the implementation of the LFRMS. These environmental issues have been identified through a review of the policies listed in Task A1, alongside an analysis of the baseline information collated during that task.

## 4.2 Local Environmental Issues

Table 4-1 summarises the environmental issues identified as part of Task A3, outlining each issue, the potential associated impacts, and the corresponding LFRMS strategic objective that addresses or aims to improve the issue through targeted actions.

**Table 4.1: Identified Key Environmental Issues in Royal Greenwich**

| Key Environmental Issues | Potential Associated Problem | LFRMS Strategic Objective to Target this Issue |
|---|---|---|
| **Rapid Population Increase** | • Larger number of residents at risk from flooding events<br>• Greater demand for new housing and infrastructure to accommodate population growth<br>• Increase in homelessness and socio-economic inequality<br>• Heightened pressure on existing public services and community facilities<br>• Elevated risk of disease transmission<br>• Increased levels of pollution and waste entering the river system | A, C, E |
| **Low Air Quality** | • Rise in respiratory conditions such as asthma and Chronic Obstructive Pulmonary Disease, as well as cardiovascular disease and certain cancers<br>• Increased mortality and morbidity rates<br>• Decline in average life expectancy<br>• Greater burden on healthcare systems and wellbeing services | B |
| **Change of land use and increased density of new developments** | • Expansion of impermeable surfaces, leading to higher volumes of surface water run-off and elevated flood risk<br>• Reduction in access to green and open spaces, diminishing mental and physical health benefits<br>• Exacerbation of the Urban Heat Island effect, driving up energy usage and cost<br>• Degradation of townscape character and reduced protection of heritage assets<br>• Growing inequalities in access to high-quality green and blue spaces<br>• Loss of habitat and threat to protected species. | A, B, C, E |
| **Reduction in the quality of waterbodies** | • Increased likelihood of failing to meet WFD targets<br>• Adverse impacts on aquatic ecosystems and biodiversity<br>• Diminished potential for water-based recreation and leisure activities | B, C |
| **Increasing CO2 emissions contributing to local and global climate change** | • Higher risk of property and infrastructure damage due to more frequent and intense storm and flood events<br>• Increased health risks from more frequent and severe heatwaves<br>• Elevated greenhouse gas emissions contributing to both local and global climate instability. | A, B, C, D, E |
| **Decline, damage, or neglect of historical and cultural assets** | • Irreversible damage to heritage sites caused by flooding and extreme weather<br>• Negative impacts from flood protection infrastructure on the significance of heritage assets<br>• Decline in cultural tourism and local economic activity<br>• Loss of recreational and cultural value for local communities | A, C, D |
| **Urban Heat Island Effect** | • Intensified heat retention in urban areas, raising indoor and outdoor temperatures<br>• Increased energy consumption for cooling buildings, driving up emissions and utility costs<br>• Altered precipitation patterns, with warmer air holding more moisture, leading to more intense rainfall and flood risk | B, C |
| **Loss of Greenspace and Biodiversity** | • Fragmentation or loss of habitats leading to reduced species richness and ecosystem resilience<br>• Decline in air and water quality due to fewer natural filters<br>• Decreased opportunities for nature-based recreation and community wellbeing<br>• Reduced carbon sequestration capacity, worsening climate impacts<br>• Loss of pollinators and ecosystem services critical to local agriculture and green infrastructure. | B, C, E |

## 4.3 Task A3 Consultation Questions

6. Do you agree that the SEA Screening Report has identified the main environmental issues relating to the LFRMS affecting Royal Greenwich? If not, please provide details.

7. Are there any other environmental issues that you believe should be addressed within this SEA Screening Report? If so, please provide details.

8. Do you believe that any of the identified environmental issues do not affect Royal Greenwich? If so, please provide details.

# 5. SEA Objectives

## 5.1 Task A4 Summary

Task A4 focuses on developing a set of SEA objectives informed by the environmental issues identified in Task A3, alongside local knowledge and understanding of flood risk management within Royal Greenwich. These SEA objectives provide the basis for evaluating the potential environmental impacts of implementing the LFRMS and its associated actions.

## 5.2 SEA Objectives

The following SEA objectives have been identified to address the key environmental issues identified in Task A3:

- SEA 1: Ensure all of Royal Greenwich's critical infrastructure has sufficient protection from flooding
- SEA 2: Ensure Royal Greenwich's increasing population is adequately housed, with flood risk prioritised within developments
- SEA 3: Ensure vulnerable residents and residents in deprived areas have access to the services and resources needed before, during, and after a flooding event
- SEA 4: Promote air and water quality improvement through flood risk interventions
- SEA 5: Promote sustainable development to reduce and mitigate the potential impacts of climate change, therefore improving resilience to flooding events and improving biodiversity and amenity
- SEA 6: Safeguard cultural and heritage assets and ensure they are made resilient to flooding, without affecting the integrity of the asset
- SEA 7: Improve the status of all WFD waterbodies within the borough, where possible.

## 5.3 Task A4 Consultation Questions

9. Do you agree that these proposed SEA objectives are the most suitable in the context of Royal Greenwich? If not, which objectives are unsuitable and why?

10. Are there any other SEA objectives that you believe should be included? If so, please provide details.

# 6. Screening Analysis of the Local Flood Risk Management Strategy

## 6.1 Task A5 Summary

Task A5 involves assessing the potential impacts of implementing the strategic objectives of the LFRMS against each of the seven SEA objectives. The aim is to identify and evaluate any environmental effect resulting from the delivery of the LFRMS. The outcome of this assessment is presented below in Sections 6.2 and 6.3.

## 6.2 Screening Analysis

Table 6-1 summarises the outcomes of the screening analysis. The scoring criteria for this qualitative analysis is listed in Table 6 2 outlines the justification for the decisions.

**Table 6.1: Scoring matrix of LFRMS Strategic Objectives against SEA objectives**

| | | SEA Objective Number | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | SEA1 | SEA2 | SEA3 | SEA4 | SEA5 | SEA6 | SEA7 |
| **LFRMS Strategy Objectives** | A | ++ | 0 | + | 0 | + | 0 | + |
| | B | + | 0 | + | + | ++ | + | ++ |
| | C | ++ | + | ++ | 0 | + | 0 | + |
| | D | + | + | + | 0 | + | 0 | + |
| | E | + | 0 | ++ | + | + | 0 | + |

**Table 6.2: Scoring Criteria for Table 6-1**

| Symbol | Meaning |
|---|---|
| ++ | Major positive effect on SEA objective. |
| + | Minor positive effect on SEA objective. |
| 0 | Neutral effect on SEA objective and/or dependent on implementation. |
| - | Minor negative effect on SEA objective. |
| - - | Major negative effect on SEA objective. |
| ? | Uncertain. |

## 6.3 Screening Analysis Outcomes

### 6.3.1 LFRMS Strategic Objective A: Improve knowledge and understanding of flood risk within Greenwich

Improving the knowledge and understanding of flood risk in Royal Greenwich will have a positive impact on most of the SEA objectives. There were no negative effects identified, and therefore, Strategic Objective A can be screened out at this stage.

**Table 6.3: LFRMS Strategic Objective A Screening Analysis**

| Effect on SEA Objective | SEA Objective | Justification |
|---|---|---|
| **Major Positive** | SEA1 | Improved understanding directly supports protecting critical infrastructure from flooding |
| **Minor Positive** | SEA3<br>SEA5<br>SEA7 | Increased awareness may help in planning support systems for vulnerable residents<br>Understanding risks aids sustainable development planning<br>Knowledge supports better ecological planning and enforcement |
| **Neutral** | SEA2<br>SEA4<br>SEA6 | This SEA objective has little/no correlation to Strategic Objective A<br>This SEA objective has little/no correlation to Strategic Objective A<br>This SEA objective has little/no correlation to Strategic Objective A |
| **Minor Negative** | N/A | None of the SEA objectives will be negatively impacted by Strategic Objective A |
| **Major Negative** | N/A | None of the SEA objectives will be negatively impacted by Strategic Objective A |
| **Uncertain** | N/A | There were no uncertainties when assessing LFRMS Strategic Objective A with any of the SEA objectives. |

### 6.3.2 LFRMS Strategic Objective B: Maximise sustainability and biodiversity benefits to Greenwich by taking a holistic approach to flood risk management through the use of natural flood management (NFM)

Maximising sustainability and biodiversity benefits to Royal Greenwich through taking a holistic approach to flood risk management through the use of NFM will have a positive effect on most of the SEA objectives. There were no negative effects identified, and therefore Strategic Objective B can be screened put at this stage.

**Table 6.4 : LFRMS Strategic Objective B Screening Analysis**

| Effect on SEA Objective | SEA Objective | Justification |
|---|---|---|
| **Major Positive** | SEA5<br>SEA7 | NFM directly supports sustainable development and biodiversity<br>NFM is proven to improve watercourse ecology, aligning with WFD goals |
| **Minor Positive** | SEA1<br>SEA3<br>SEA4<br>SEA6 | NFM can enhance resilience, but less direct than traditional protection methods<br>Indirectly supports vulnerable populations through reducing flood risk<br>Community based NFM can engage residents in outdoor/green activities<br>NFM directly supports sustainable development and climate |
| **Neutral** | SEA2 | NFM does not directly influence housing |
| **Minor Negative** | N/A | None of the SEA objectives will be negatively impacted by Strategic Objective B |
| **Major Negative** | N/A | None of the SEA objectives will be negatively impacted by Strategic Objective |
| **Uncertain** | N/A | There were no uncertainties when assessing LFRMS Strategic Objective B with any of the SEA objectives. |

### 6.3.3 LFRMS Strategic Objective C: Reduce the risk of flooding to the community in Greenwich by delivering targeted flood alleviation schemes (FASs) and encouraging the use of sustainable drainage systems (SuDS)

Reducing the risk of flooding to the community in Royal Greenwich by delivering targeted flood alleviation schemes and encouraging the use of sustainable drainage systems will have a positive effect on most of the SEA objectives. There were no negative effects identified, and therefore Strategic Objective C can be screened out at this stage.

**Table 6.5: LFRMS Strategic Objective C Screening Analysis**

| Effect on SEA Objective | SEA Objective | Justification |
|---|---|---|
| **Major Positive** | SEA1<br>SEA3 | FAS provide direct protection to critical infrastructure<br>Targeted schemes directly protect vulnerable residents |
| **Minor Positive** | SEA2<br>SEA5<br>SEA7 | Reduced flood risk supports housing viability<br>SuDS support climate resilience and sustainability<br>SuDS can enhance local ecological quality |
| **Neutral** | SEA4<br>SEA6 | No direct impact on obesity or community health<br>FAS and SuDS area not directly aimed at heritage asset conservation |
| **Minor Negative** | N/A | None of the SEA objectives will be negatively impacted by Strategic Objective C |
| **Major Negative** | N/A | None of the SEA objectives will be negatively impacted by Strategic Objective C |
| **Uncertain** | N/A | There were no uncertainties when assessing LFRMS Strategic Objective C with any of the SEA objectives. |

### 6.3.4 LFRMS Strategic Objective D: Investigate new funding opportunities available to develop flood risk management within Greenwich.

Investigating new funding opportunities available to develop flood risk management within Royal Greenwich will have a positive impact on most of the SEA objectives. There were no negative effects identified and therefore, Strategic Objective D can be screened out at this stage.

**Table 6.6: LFRMS Strategic Objective D Screening Analysis**

| Effect on SEA Objective | SEA Objective | Justification |
|---|---|---|
| **Major Positive** | N/A | No major positives were identified when assessing Strategic Objective D with any of the SEA objectives |
| **Minor Positive** | SEA1<br>SEA2<br>SEA3<br>SEA5<br>SEA7 | Additional funding could lead to better infrastructure protection<br>Could indirectly support housing resilience<br>May fund emergency support systems for vulnerable people<br>Funding could enable flood solutions to occur<br>Funding could support ecological improvements |
| **Neutral** | SEA4<br>SEA6 | No direct impact on obesity or community health<br>Impact on heritage is dependent on what is funded |
| **Minor Negative** | N/A | None of the SEA objectives will be negatively impacted by Strategic Objective D |
| **Major Negative** | N/A | None of the SEA objectives will be negatively impacted by Strategic Objective D |
| **Uncertain** | N/A | There were no uncertainties when assessing LFRMS Strategic Objective D with any of the SEA objectives. |

### 6.3.5 LFRMS Strategic Objective E: Improve community awareness and preparedness of flood risk within the borough

Improving community awareness and preparedness of flood risk within the borough will have a positive impact on most of the SEA objectives. There were no negative impacts identified, and therefore, Strategic Objective E can be screened out at this stage.

**Table 6.7: LFRMS Strategic Objective E screening analysis**

| Effect on SEA Objective | SEA Objective | Justification |
|---|---|---|
| **Major Positive** | SEA3 | No major positives were identified when assessing Strategic Objective D with any of the SEA objectives |
| **Minor Positive** | SEA1<br>SEA4<br>SEA5<br>SEA7 | Awareness supports better infrastructure use and emergency response<br>Engagement activities may support healthier lifestyles<br>Improved awareness could promote sustainable behaviours<br>Awareness can lead to better community stewardship of local waterbodies |
| **Neutral** | SEA2<br>SEA6 | Doesn't directly impact upon housing provision<br>Doesn't directly enhance heritage conservation |
| **Minor Negative** | N/A | None of the SEA objectives will be negatively impacted by Strategic Objective E |
| **Major Negative** | N/A | None of the SEA objectives will be negatively impacted by Strategic Objective E |
| **Uncertain** | N/A | There were no uncertainties when assessing LFRMS Strategic Objective E with any of the SEA objectives. |

## 6.4 Task A5 Consultation Questions

11. Do you have any comments on the proposed method for assessing the SEA objectives with the Strategy Objectives?

12. Do you agree with the screening analysis of each of the LFRMS Strategic Objectives? If not, please provide reasons as to why you would screen a certain Objective differently.

# 7. Conclusions

## 7.1 Conclusions

This SEA Screening Report concludes that the proposed Strategic Objectives of the LFRMS are unlikely to result in any adverse effects on the environmental issues identified within Royal Greenwich. Furthermore, each of the Strategic Objectives is expected to have a positive impact on at least one of the SEA objectives.

Based on this assessment, it is determined that the LFRMS has appropriately considered the social, economic, and environmental implications of its proposed actions. Therefore, the strategy does not need to proceed to Stage B of the SEA process, and a full SEA is not required at this time.

The LFRMS will be subject to an internal review on an annual basis, and a comprehensive public review every six years. As part of this review process, an updated SEA screening will be carried out in accordance with the requirements of the SEA Directive. Should any potential negative environmental impacts be identified in future updates of the LFRMS, a full SEA will be undertaken, and alternative measures will be proposed to mitigate any such impacts.

## 7.2 Final Consultation Questions

13. Do you have any comments on the conclusions within this SEA Screening Report of the LFRMS?

14. Do you have any additional comments or suggestions for this SEA Screening Report?

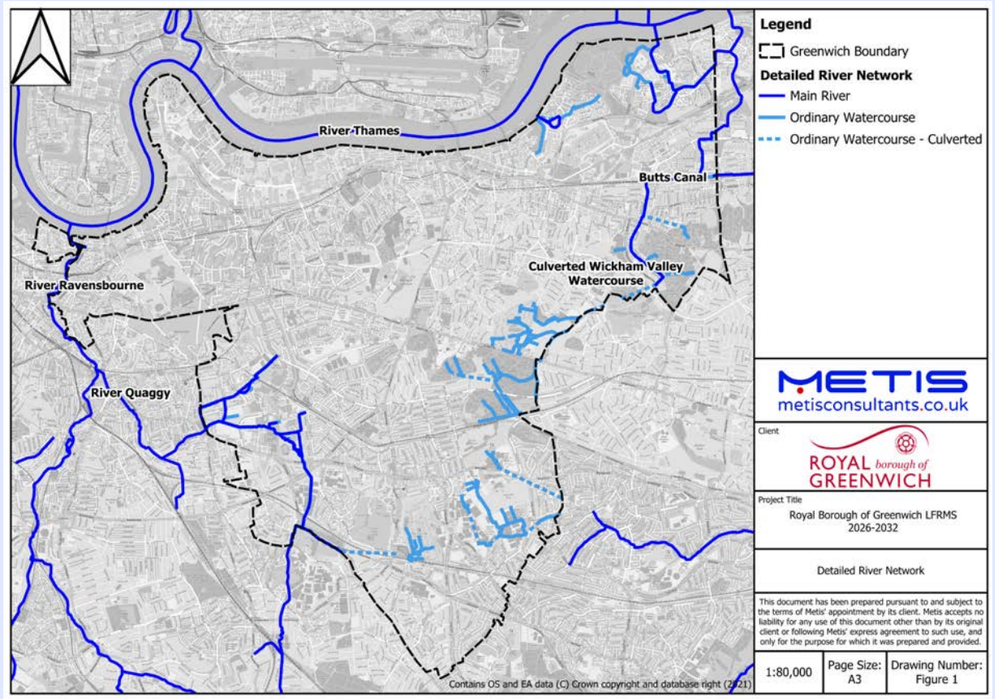
# 8. Appendix

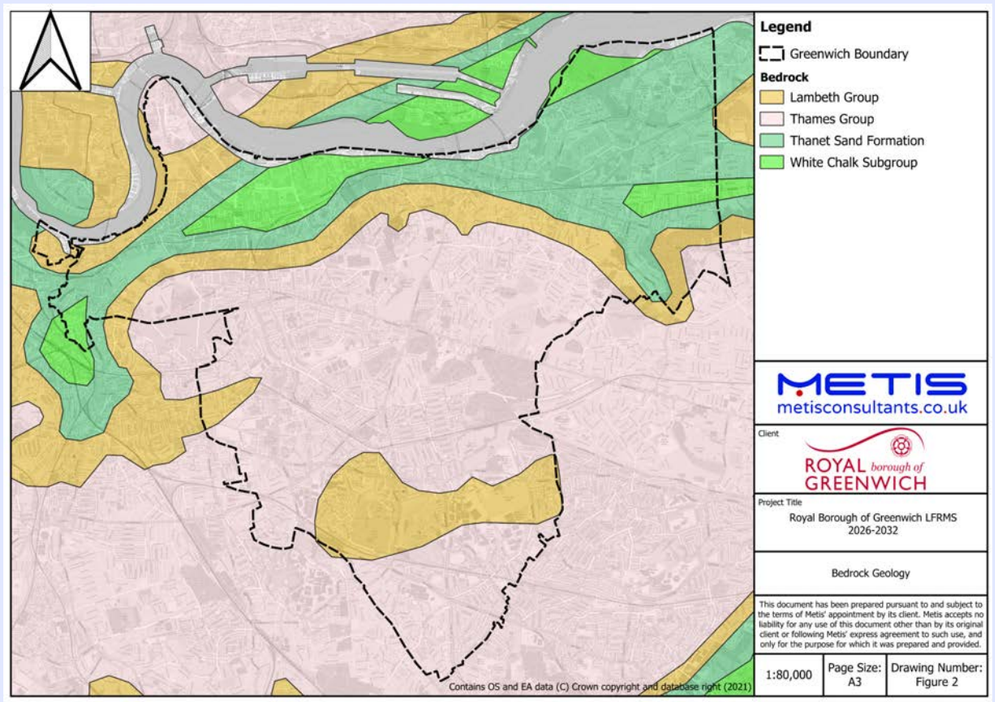
## 8.1 Appendix A

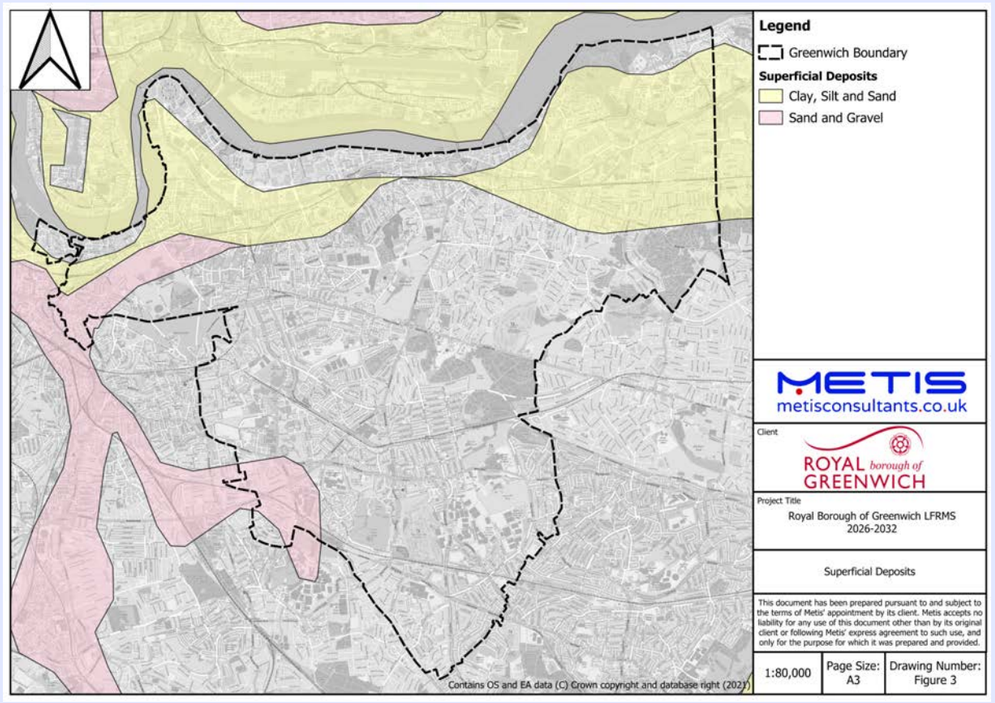
**List of SINCs**

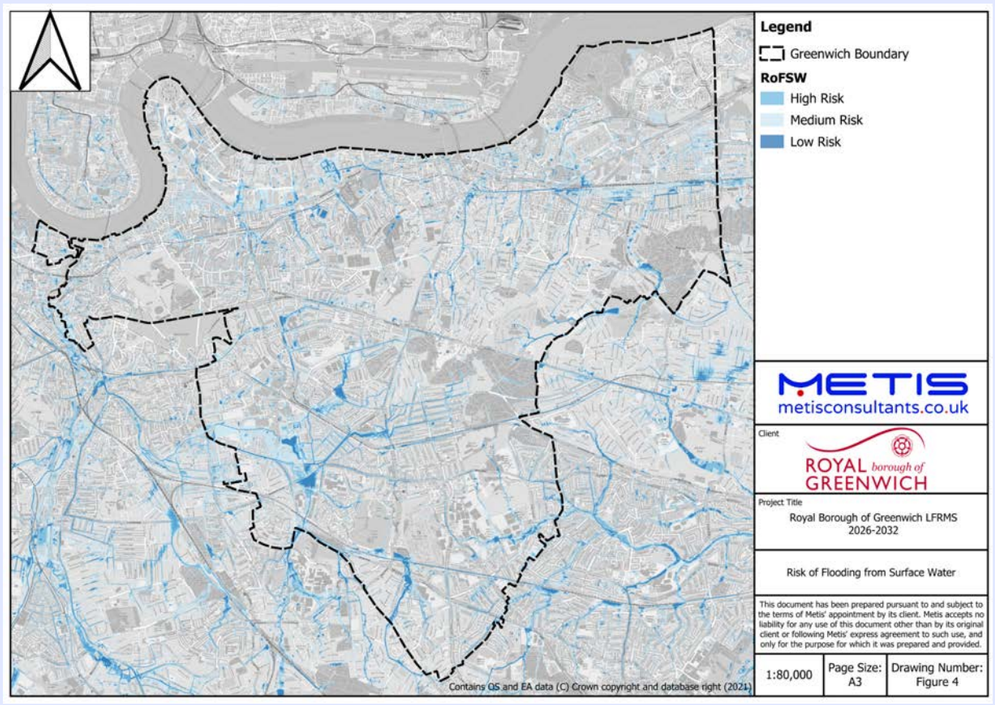
- Woolwich Cemeteries and Rockliffe Gardens
- Eltham Park North
- Deansfield
- Royal Blackheath Golf Course – south fairways
- Gallions Reach Park
- Avery Hill Fields
- The Ridgeway in Greenwich
- Eastmoor Street Park
- Blackheath to Falconwood Railsides
- Westcombe Park Railsides
- Mottingham and New Eltham Railsides
- Plumstead Railway Cutting
- Belmarsh Prison Ditches
- St Nicholas Churchyard, Deptford
- Sutcliffe Park
- River Ravensbourne in Greenwich
- River Quaggy at Blackheath Park
- Eltham Palace Fields
- Twinkle Park
- Well Hall Pleasaunce
- East Wickham Open Space
- Mycenae House Gardens
- Academy Place Orchard
- St Mary's Churchyard, Woolwich
- Southwood Recreation Ground
- The Oaks, Plumstead
- Anglesea Road Open Space & School
- Wildlife Area
- The Tarn
- St. John the Baptist Churchyard
- Eaglesfield Wood
- Blackheath and Greenwich Park
- Repository Wood and Charlton Cemetery
- Plumstead Cemetery
- Charlton House Lawns
- Sidcup Road Grassland and Harmony Wood
- Plumstead Common (Winn's Common, Bleak Hill, and The Slade)
- Maryon Park, Gilbert's Pit and Maryon Wilson Park
- Eltham Warren Golf Course, Gravel Pit Lane, and the Nature Study Centre
- Shrewsbury Park, Shooters Hill Golf Course,
- Dothill Allotments and Woodlands Farm
- Thamesmead wetland and historic area
- Greenwich Ecology Park and Southern Park
- Oxleas Meadow
- Birchmere
- Woolwich Common
- Tump 53 Nature Park
- Greenwich Cemetery
- Twin Tumps and Thamesmere
- The Westcombe Woodlands
- Plumstead Common Local Nature Reserve
- The River Thames and tidal tributaries
- Kidbrooke Green and Birdbrook Road Nature Reserves
- Royal Blackheath Golf Course
- Pippenhall Meadows
- Bostall Wood & Heath
- Shooters Hill Woodlands
- Blackheath and Greenwich Park

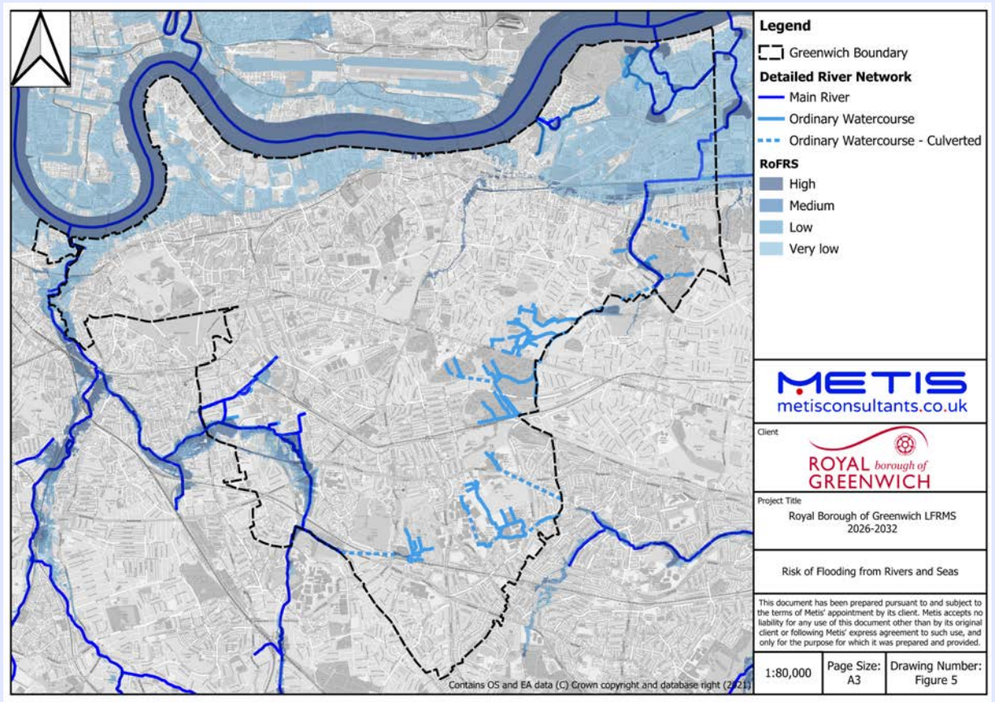
# Appendix E - Mapping




Legend
Greenwich Boundary
Detailed River Network
Main River
Ordinary Watercourse
Ordinary Watercourse - Culverted
RoFRS
High
Medium
Low
Very low
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Client
ROYAL borough of GREENWICH
Project Title
Royal Borough of Greenwich LFRMS 2026-2032
Risk of Flooding from Rivers and Seas
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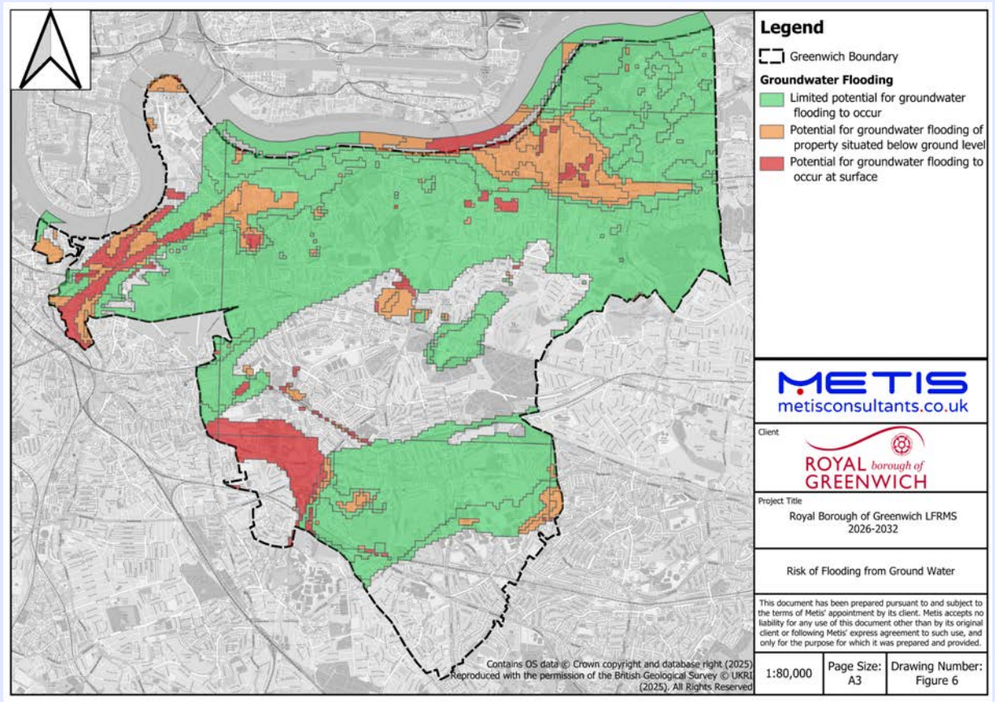
Legend
Greenwich Boundary
Groundwater Flooding
Limited potential for groundwater flooding to occur
Potential for groundwater flooding of property situated below ground level
Potential for groundwater flooding to occur at surface
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Risk of Flooding from Ground Water
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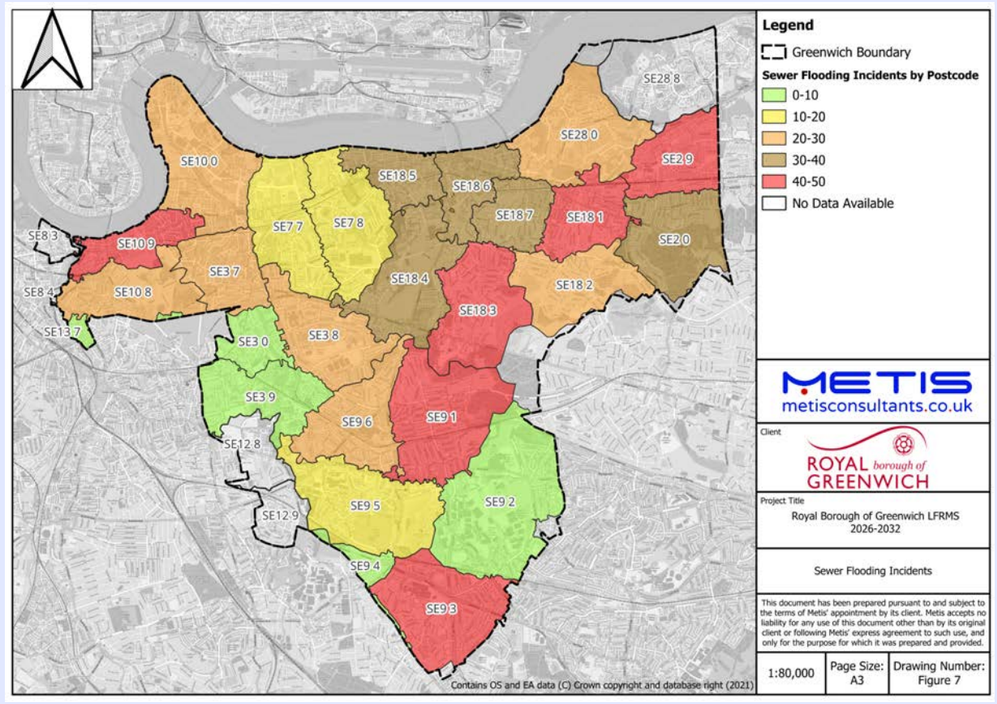
Legend
Greenwich Boundary
Sewer Flooding Incidents by Postcode
0-10
10-20
20-30
30-40
40-50
No Data Available
SE28 8
SE28 0
SE2 9
SE10 0
SE18 5
SE18 6
SE18 7
SE18 1
SE8 3
SE10 9
SE7 7
SE7 8
SE2 0
SE3 7
SE18 4
SE18 2
SE8 4
SE10 8
SE18 3
SE13 7
SE3 0
SE3 8
SE3 9
SE9 6
SE9 1
SE12 8
SE9 5
SE9 2
SE12 9
SE9 4
SE9 3
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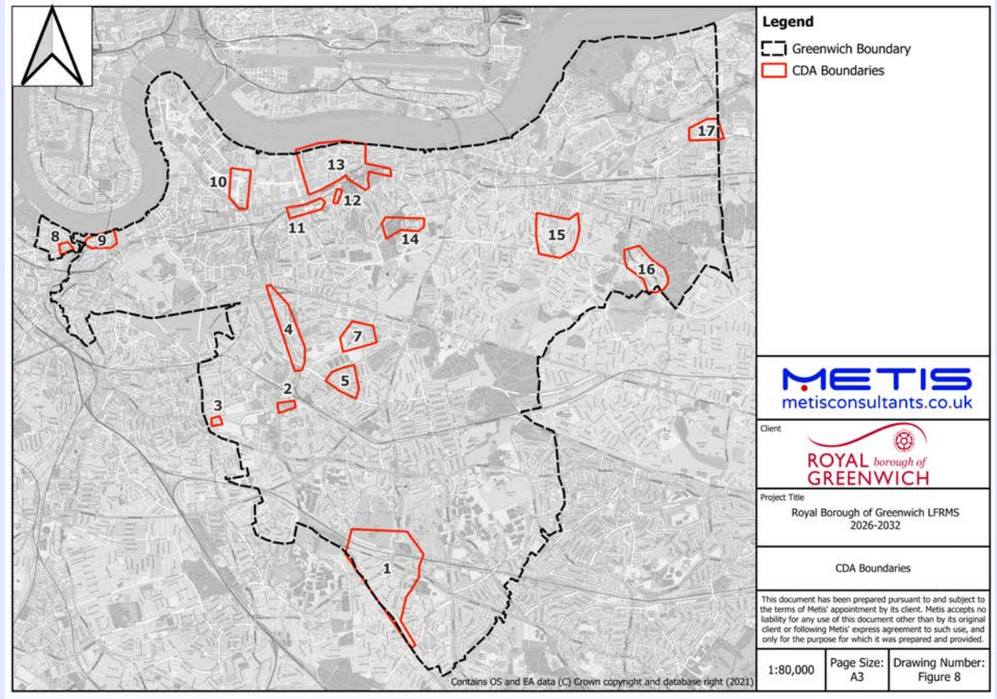
Legend
Greenwich Boundary
CDA Boundaries
17
13
10
12
11
14
15
8
9
16
4
7
5
2
3
1
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Project Title
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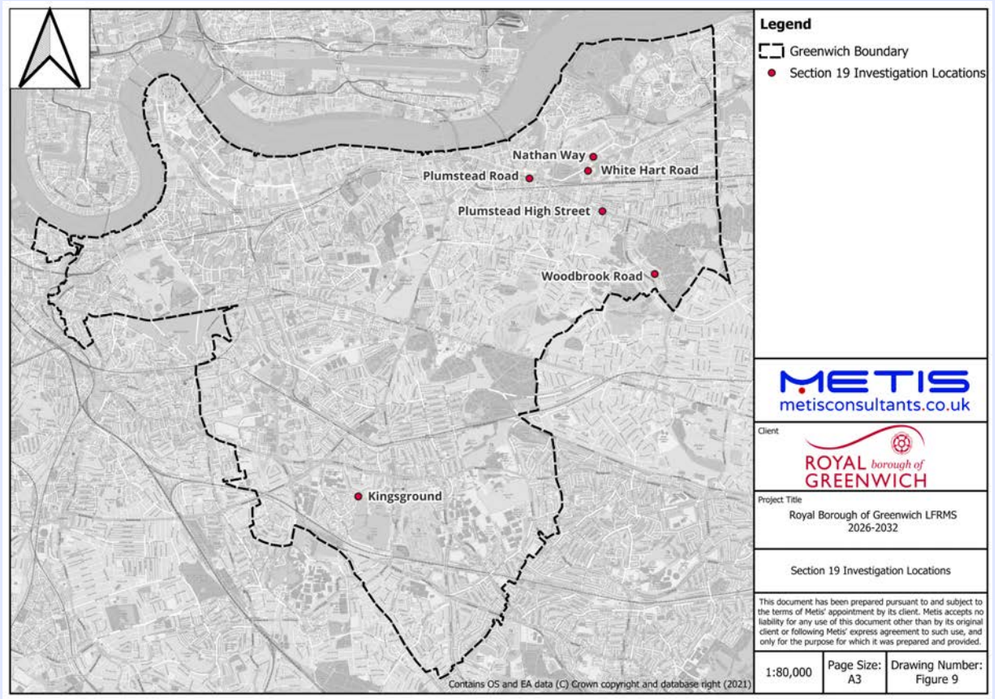


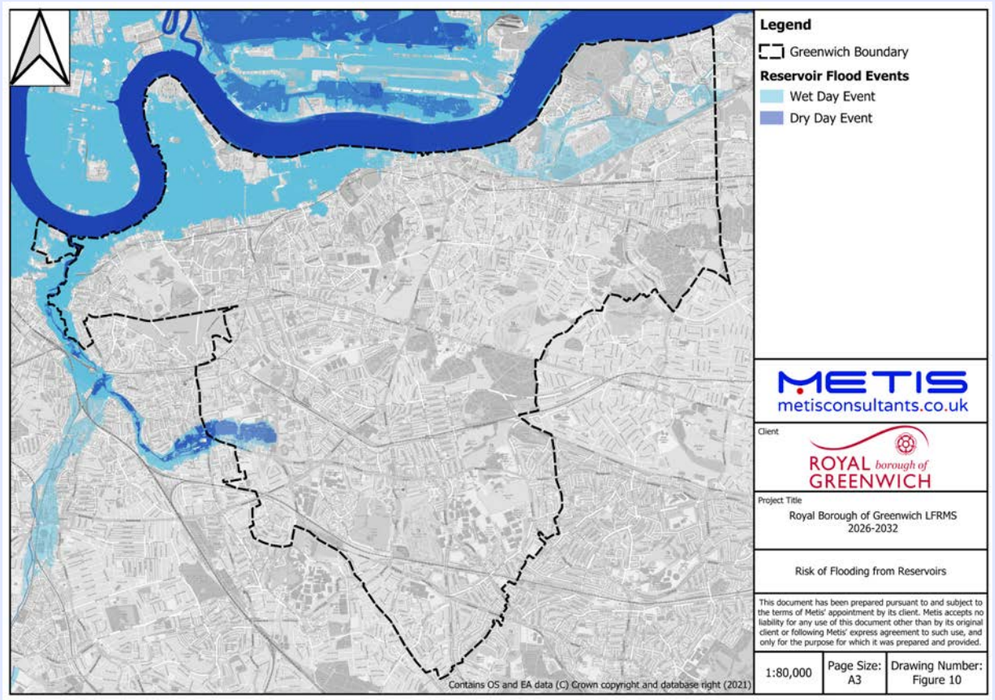


# Appendix F

## How to Reduce the Risk

Although preventing all types of flooding is not possible, there are ways to mitigate the impacts. There are two main approaches when addressing property flooding.

**Resistance** – Aims to prevent water entering the building

**Resilience** – Aims to reduce the damage if water enters the building

There are a variety of options which can be used increase property resistance/ resilience. These are known as property flood resistance (PFR) measures. Some of these include:

- non-return valves fitted on drains and pipes
- applying water resistant paints
- fitting automatic anti flood airbricks.

The National Flood Forum (NFF) provide useful information on the **Blue Pages** regarding PFR products. An informed decision by the property owner should be made when installing PFR products. The council's LLFA strongly recommends checking PFR certifications.

## Property Flood Resilience

A range of measures can be implemented to enhance a properties resistance and/ or resilience to flooding. They are commonly referred to as Property Flood Resilience (PFR) measures. Some examples of PFR options include (Figure F 1):

- non-return valves fitted on drains and pipes
- applying water resistant paints
- fitting automatic anti-flood airbricks
- flood doors.

**Figure F 1 Flood Barrier, Flood Door and Airbrick (Source: The Flood Hub)**


## Preparing an Emergency Plan

The first thing to do is make sure that you are adequately insured, and that you keep your insurance documents safe. You can also take precautions to limit the chance of being in an emergency, or of minimising its effect on you by

Know where and how to switch off the gas, electricity and water supplies into your home: You might need to turn these off to prevent further damage to your home in an emergency. If it is not safe, or you do not have time to do this before you need to evacuate your home, do not put yourself at risk. If you would be particularly vulnerable to power and / or water supply failures contact your utility providers to find out if you would be eligible to go on their priority services register to receive additional support in an emergency. You will need to register with each of your utility providers separately.

**How to prepare for a power cut:**

- keep a torch with spare batteries. Take care if using candles
- keep a wireless charger available for your mobile
- keep your mobile phone and electronic devices fully charged.

## Preparing an Emergency Kit

Put together some essential items that would help you in an emergency either at home, or if you need to be evacuated with little or no notice. In your emergency kit you should include:

An emergency kit is a suggested list of items that could help you cope in an emergency until further help from the emergency services or local authority arrives. It could be for use in your home, or if you have to be evacuated. The kit could include:

- copies of insurance and other important documents (e.g. personal identification)
- keys for your home (remember to lock up if you are evacuated) and vehicle
- list of useful contact numbers
- money and credit / debit cards
- copies of home insurance documents
- mobile phone (and charger)
- portable power bank (and charger)
- medication
- spectacles or contact lenses
- toiletries
- valuables and sentimental items (if safe to do so if being evacuated)
- child's special toy
- baby food and care items
- leads, carriers etc for pets
- spare clothes
- notepad and pen / pencil
- first aid kit
- wind up (or battery powered) torch and radio – providing light and information
- warm, waterproof clothing and blankets
- bottled water and long-life food (snacks and sweets), including any special food – if it is in a tin remember to keep a tin opener with it.

## Before, During and After a Flood

The EA have provided the following guidance on what actions individuals should take before, during and after flooding.

Figure F 2 summarises this guidance. Further information on what to do before, during and after a flood can be found on the council's website here.

**Figure F 2 EA guidance for before, during and after a flood**

### Before

- Sign up to the EA's free 24-hour Floodline Warning Direct Service
- Prepare an emergency kit and emergency plan
- Know how to turn of gas, electricity and water supplies
- If you have them, use flood protection products, for example flood barriers or air brick covers
- Take inventory and photos of valuables for insurance purposes

### During

- Turn off gas, electric and water supplies
- Do not approach fast flowing or deep water
- Move to higher ground or upper levels
- Floodwater may be contaminated so keep cuts clean and covered

### After

- Only return to the property when it is safe to do so
- Do not turn on electricity until it has been checked
- Take photos of any damage and the flood water line
- Speak to your insurance company about what you can move and throw away

## How to Report a Flood

**Figure F 3 Flood reporting information**

See Figure F 3 for information on flood reporting.

### For Surface water, Groundwater, Ordinary Watercourses:

Report to the council here:
fix.royalgreenwich.gov.uk

In an emergency call: **020 8854 8888**

### For Main River and Reservoir flooding:

Report to the Environment Agency here:
gov.uk/report-flood-cause

For emergencies call the Floodline here:
**0345 988 1188**

### For Sewer Flooding:

Report to Thames Water here:
thameswater.co.uk/help/report-a-problem

For emergencies call: **0800 316 9800**

ROYAL borough of GREENWICH