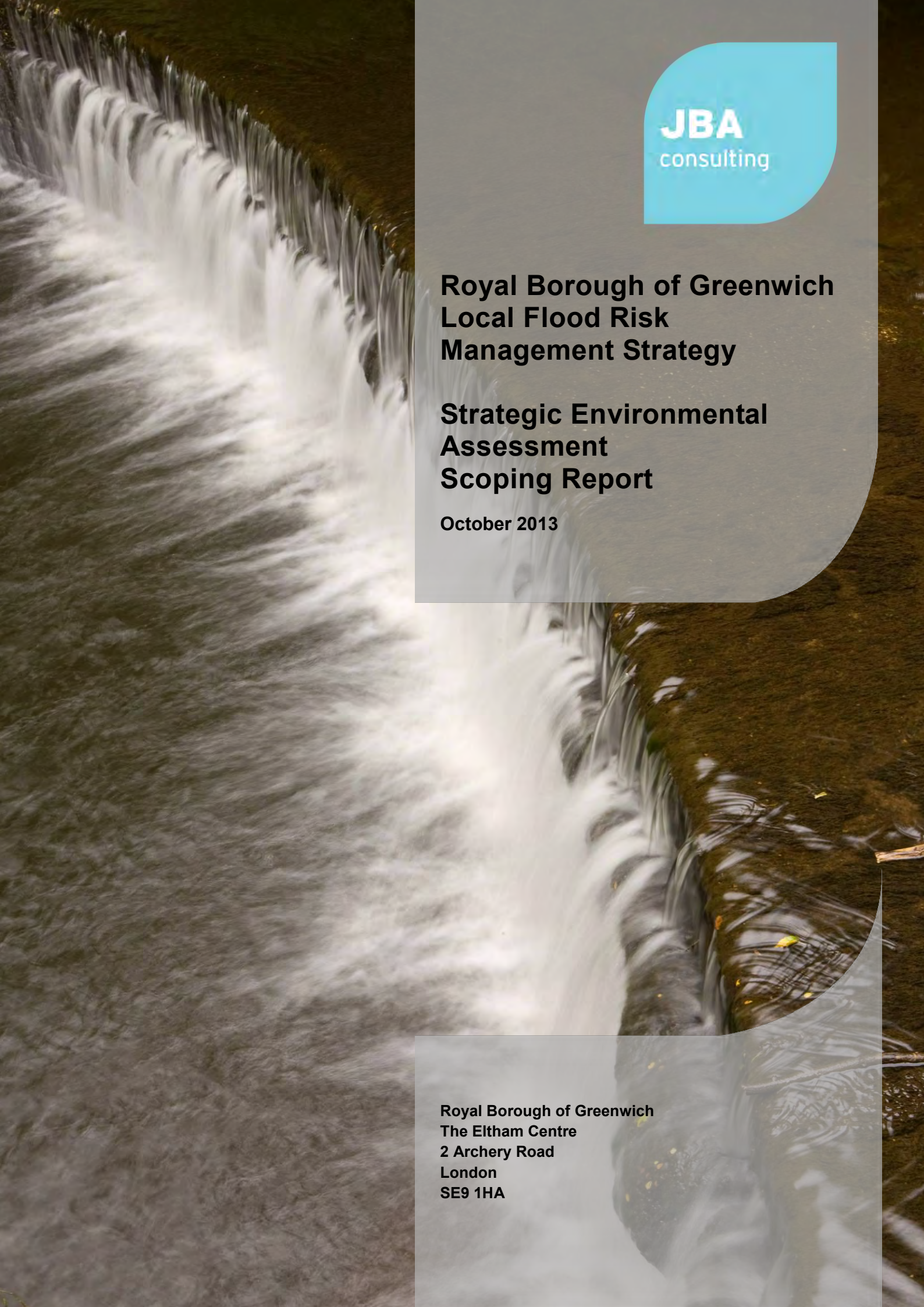

Royal Borough of Greenwich Local Flood Risk Management Strategy

Strategic Environmental Assessment Scoping Report

October 2013

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Contract

This report describes work commissioned by the Royal Borough of Greenwich. Jessie Kennedy and Kate Hunt of JBA Consulting carried out this work.

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Purpose

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Definitions

AQMA	Air Quality Management Area
AQO	Air Quality Objectives
AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
CAMS	Catchment Abstraction Management Strategy
CWS	County Wildlife Site
JBA	Jeremy Benn Associates
LBAP	Local Biodiversity Action Plan
LFRMS	Local Flood Risk Management Strategy
LLFA	Lead Local Flood Authority
LNR	Local Nature Reserve
ODPM	Office of the Deputy Prime Minister
NCA	National Character Area
NNR	National Nature Reserve
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

1 Introduction

The Royal Borough of Greenwich is currently preparing a Local Flood Risk Management Strategy (LFRMS). As part of this process, the Council is also carrying out a Strategic Environmental Assessment (SEA), which considers the potential environmental impacts of the LFRMS. This Scoping Report sets out the scope of, and assessment framework for undertaking the SEA. It provides a description of the baseline environmental characteristics and key environmental issues present in and around the Borough, and identifies other relevant plans, programmes and policies that may influence the development of the LFRMS. This report also sets out a framework to be used to examine the environmental impacts of implementing the LFRMS and comprises a series of SEA objectives and indicators that have been developed to reflect the key environmental issues of relevance to the Borough.

1.1 The Local Flood Risk Management Strategy

The Flood and Water Management Act (FWMA) was passed in April 2010. It aims to improve both flood risk management and the way we manage our water resources. The FWMA creates clearer roles and responsibilities and instils a more risk-based approach to flood risk management. This includes a new lead role for the Council as a Lead Local Flood Authority (LLFA) in managing and leading on local flood risk management from surface water, groundwater and ordinary watercourses.

Under the requirements of the FWMA, the Council must develop, maintain, apply and monitor a LFRMS for local flood risk management in its area. The LFRMS provides a delivery vehicle for improved flood risk management and supports the development of partnership funding and strategic investment programme.

The LFRMS will set out:

- The roles and responsibilities for each risk management authority (RMA) and their flood risk management functions; and
- Opportunities, objectives and measures for flood risk reduction of existing communities, including ways to minimise the risk from future growth.

Development of the LFRMS provides considerable opportunities to improve and integrate land use planning and flood risk management. It is an important tool to protect vulnerable communities and deliver sustainable regeneration and growth.

1.2 Strategic Environmental Assessment (SEA)

SEA is a statutory assessment process required under the Environmental Assessment of Plans and Programmes Regulations 2004 (the 'SEA Regulations'). These regulations transpose into United Kingdom (UK) law the requirements of the European Directive 2001/42/EC *'on the assessment of the effects of certain plans and programmes on the environment'* (the 'SEA Directive'). The SEA Directive requires formal assessment of plans and programmes which are likely to have significant effects (either positive or negative) on the environment. It applies to all plans and programmes which are *'subject to preparation and/or adoption by an authority at national, regional or local level'* or are *'required by legislative, regulatory or administrative provisions'*.

Local Government Association (LGA) guidance[1] on the production of the LFRMS identifies the likely requirement for an SEA, stating that *'the Local FRM Strategy is likely to require statutory SEA, but this requirement is something the LLFA must consider'*. A SEA screening process was therefore undertaken and the Council has confirmed the requirement for its LFRMS to undergo SEA.

The first output from the SEA process is the production of a Scoping Report, which outlines the scope and methodology of the assessment. A proportionate approach has been adopted towards establishing the scope of the SEA, reflecting the high-level nature of the LFRMS. Consultation with the statutory consultees (English Heritage, Natural England and the

[1] Local Government Association (2011) Framework to Assist the Development of the Local Strategy for Flood Risk Management.

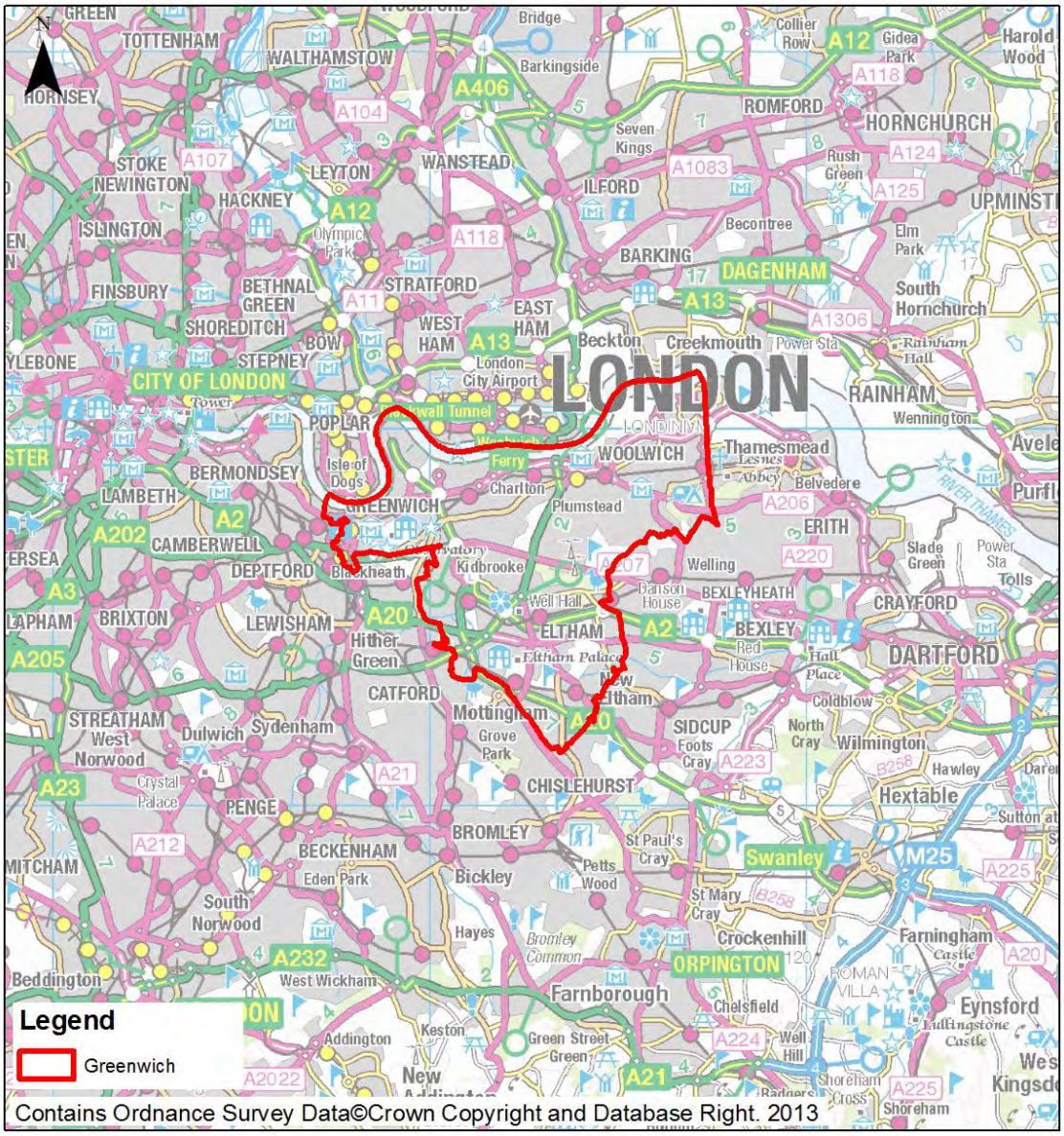
Environment Agency) will be undertaken to refine and confirm the methodology and scope of the assessment. These aspects will be reviewed iteratively as the LFRMS develops so as to ensure the strategy fully considers the environmental impacts of its implementation before it is adopted.

Once consultation on the scope of the SEA has been completed, an Environmental Report will be prepared that describes the likely significant impacts on the environment of implementing the LFRMS.

1.3 The study area

The Royal Borough of Greenwich is located in south-east London and takes its name from the historic town of Greenwich. It is bounded to the north by the River Thames, with the London Borough of Bexley to the east, and the boroughs of Lewisham and Bromley to the west and south respectively. The Borough is highly urban and includes the areas of Greenwich, Eltham and Woolwich. It covers an area of approximately 50km^2 and has a population of approximately 255,000 people.

Figure 1: Extent of study area



2 SEA process and methodology

2.1 Meeting the requirements of the SEA Directive

SEA involves the systematic identification and evaluation of the potential environmental impacts of the LFRMS. This information is then used to aid the selection of a preferred option(s) for the strategy, which are those that best meet its economic, environmental and social objectives, and legal requirements.

The full range of environmental receptors has been considered when developing the scope of the SEA. This meets the requirements of the SEA Directive, which requires that an assessment identifies the potentially significant environmental impacts on *'biodiversity, population, human health, fauna, flora, soil, water, air, climatic, material assets including architectural and archaeological heritage, landscape and the interrelationship between the above factors'*.

Annex I of the SEA Directive sets out the scope of information to be provided by the SEA. This is described in Table 1 below, which also identifies where in the SEA process for the LFRMS that the relevant requirement will be met.

Table 1: Stages in the SEA process as identified within Annex I of the SEA Directive

SEA Directive requirements	Where covered in the SEA
(a) an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes;	SEA Scoping Report (Section 3)
(b) the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;	SEA Scoping Report (Section 4)
(c) the environmental characteristics of areas likely to be significantly affected;	SEA Scoping Report (Section 4)
(d) any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC;	SEA Scoping Report (Section 4)
(e) the environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;	SEA Scoping Report (Sections 3 and 4)
(f) the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;	SEA Environmental Report (to be prepared)
(g) the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;	SEA Environmental Report (to be prepared)
(h) an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;	SEA Environmental Report (to be prepared)
(i) a description of the measures envisaged concerning monitoring in accordance with Article 10;	SEA Environmental Report (to be prepared)
(j) a non-technical summary of the information provided under the above headings.	SEA Environmental Report (to be prepared)

2.2 Stages in the SEA process

This report has been prepared in accordance with the requirements of the SEA Regulations and follows good practice guidance produced by the Office of the Deputy Prime Minister

(OPDM)[2]. The ODPM guidance sets out a five stage process (A to E) to be followed (see Table 2). This Scoping Report addresses Stage A of the process wherein the context and objectives of the SEA are identified and the scope of the assessment is determined. For the purpose of this assessment, stages A1 to A4 will be completed, whilst stage A5 comprises consultation on this Scoping Report, which will be conducted as outlined in Section 6 of this document.

Table 2: Stages in the SEA process

SEA stages and tasks	Purpose	Where covered in the SEA
Stage A	**Setting the context and objectives, establishing the baseline and deciding on the scope**	SEA Scoping Report
(A1) Identifying other relevant plans, programmes and environmental protection objectives	To establish how the plan or programme is affected by outside factors, to suggest ideas for how any constraints can be addressed and to help to identify SEA objectives.	SEA Scoping Report (Section 3)
(A2) Collecting baseline information	To provide an evidence base for environmental problems, prediction of effects, and monitoring; to help in the development of SEA objectives.	SEA Scoping Report (Section 4)
(A3) Identifying potential environmental problems	To help focus the SEA and streamline the subsequent problems, prediction of effects, and monitoring; to help in the development of SEA objectives.	SEA Scoping Report (Section 4)
(A4) Developing SEA objectives	To provide a means by which the environmental performance of the plan or programme and alternatives can be assessed.	SEA Scoping Report (Section 5)
(A5) Consulting on the scope of SEA	To ensure that the SEA covers the likely significant environmental effects of the plan or programme.	SEA Scoping Report (Section 6)
Stage B	**Developing and refining options and assessing effects**	SEA Environmental Report (to be prepared)
Stage C	**Preparing the Environmental Report**	SEA Environmental Report (to be prepared)
Stage D	**Consulting on the draft LFRMS and the Environmental Report**	SEA Environmental Report (to be prepared)
Stage E	**Monitoring the significant effects of implementing the LFRMS**	SEA Environmental Report (to be prepared)

2.3 Scope of the SEA

2.3.1 Task A1: Identifying other relevant policies, plans and programmes, and environmental protection objectives

The relationship between various policies, plans, programmes and environmental protection objectives may influence the LFRMS. The relationships are analysed to:

- Identify any external social, environmental or economic objectives that should be reflected in the SEA process;
- Identify external factors that may have influenced the preparation of the plan; and
- Determine whether the policies in other plans and programmes might lead to cumulative or synergistic effects when combined with policies in the plan.

The plans and programmes that need to be considered include those at the international, national, regional and local scale. These are identified and evaluated in Section 3.

2.3.2 Task A2: Collecting baseline information

The SEA Directive identifies a range of environmental topics that must be considered for all environmental assessments. These are shown in Table 3.

[2] Office of the Deputy Prime Minister (ODPM) (2005) A Practical Guide to the Strategic Environmental Assessment Directive.

Baseline information has been collected in relation to each of these topics, many of which are inter-linked. A desk study information search was undertaken to identify baseline environmental information, which was used to determine the key environmental characteristics of the LFRMS area. This information provides the basis for assessing the potential effects of the LFRMS options and will aid development of appropriate mitigation measures, together with future monitoring data. The information search included information from a wide range of sources including the following organisations:

- Royal Borough of Greenwich
- Greater London Authority
- Natural England
- Environment Agency
- Office for National Statistics
- English Heritage
- Joint Nature Conservation Committee
- Transport for London

Where information is available, key environmental targets and objectives have been identified; established and predicted trends in the status or condition of environmental features have been described; and significant environmental and sustainability issues have been highlighted. Trends evident in the baseline information have been used to predict the future baseline situation, which has assumed a continuation of the existing trends in some cases.

Table 3: Environmental topics to be covered in the SEA

SEA Directive requirements	Where covered in the Scoping Report	Definition in relation to this report
Air	Air quality	Air quality patterns.
Biodiversity (including flora and fauna)	Biodiversity, flora and fauna	Rare and notable species and habitats; trends in condition and status.
Climate	Climate	Regional climate patters; trends in greenhouse gas emissions and the sources of these emissions; mitigation measures and adaptation options to manage climate change.
Cultural heritage	Historic environment	Protected and notable heritage features; human induced physical changes to the environment.
Human health	Population	Trends and patterns in human health; key community facilities and recreation opportunities.
Landscape	Landscape and visual amenity	The local landscape character; protected and notable landscapes; key local landscape features.
Material assets	Material assets	Critical infrastructure.
Population	Population	Where people live and work; population trends and demographics; economic prosperity; relative levels of advantage, disadvantage and inequality; key community facilities; accessibility and recreation opportunities.
Soil	Geology and soils	Variety of rocks, minerals and landforms; the quantity and distribution of high quality soil.
Water	Water environment	Chemical and biological water quality; water resources; waterbody hydromorphology; flood risk.
And the interrelationship between the above factors	Throughout the Scoping Report	The relationship between environmental features and issues.

2.3.3 Task A3: Identifying environmental issues and problems

The identification of significant environmental issues is an important step in establishing an appropriate assessment framework. Such issues have been identified directly through the

baseline information search or can be identified by evaluating the relationship between the aims of the LFRMS and the established environmental baseline.

2.3.4 Task A4: Developing the SEA objectives

SEA objectives are a key tool used to assess the potential positive and negative environmental effects of the LFRMS. Together with associated indicators, they form an assessment framework that provides a means to predict, describe and analyse the environmental effects that are likely to arise from the implementation of the strategy. The strategy objectives are appraised individually against each SEA objective, thereby allowing environmental, economic and social effects, in particular those which are significant, to be identified. The use of comparable alternatives can also be incorporated into the assessment once the assessment framework has been established to aid in the identification of the most appropriate option for each of the strategy objectives.

2.4 Habitats Regulations

The European Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC, 'the Habitats Directive') as implemented through the Conservation of Habitats and Species Regulation 2010 (as amended) ('the Habitats Regulations') requires a competent authority to carry out a Habitats Regulations Assessment (HRA) of a plan or project to establish whether it will have a 'likely significant effect' on sites designated for their nature conservation interest at an international level. (known as European sites, which include SACs, SPAs, and by UK Government policy, Ramsar sites). The LFRMS for the Royal Borough of Greenwich, as a statutory plan, is subject to the requirements of the Habitats Directive.

Assessing the impacts of a plan under the Habitats Regulations is a separate process to SEA. However, there is overlap between these two types of assessment. A Test of Likely Significant Effect (screening appraisal) has been undertaken in accordance with the requirements of the Habitats Regulations to determine whether the LFRMS is likely to adversely affect the integrity of a European site (alone or in combination). If a likely significant adverse effect is identified, an Appropriate Assessment must be carried out to assess the potential impacts and determine whether it is possible to demonstrate that there would not be an adverse effect on the integrity of the European site.

The outcomes of this TLSE are documented in Appendix B of this report and a summary of its outcomes is provided in Section 4.12. Consultation with Natural England on the outcomes of this assessment will be undertaken as part of the consultation process outlined in Section 6.

3 Other relevant policies, plans and programmes

3.1 Introduction

An important aspect of the SEA process is the assessment of other policies, plans and programmes and their environmental protection objectives, to identify how these strategic objectives may influence the development of the LFRMS. Identifying these relationships enables potential synergies to be determined, strengthening the benefits that can be gained from implementation of the LFRMS. This information is also used to inform the development of the environmental baseline and the identification of key issues and problems.

In addition, any inconsistencies or constraints can be identified, which could hinder the achievement of the environmental protection objectives or those of the LFRMS, and therefore providing a broad appraisal of the strategy's compliance with international, national and local considerations.

The ODPM SEA guidance recognises that no list of plans or programmes can be definitive and as a result this report describes only the key documents which may influence the LFRMS. These are shown in Table 4.

Table 4: Policies, plans and programmes reviewed through this SEA process

Plan, Policy or Programme
International
EU Sustainable Development Strategy (revised 2006)
European Biodiversity Strategy to 2020
EC Birds Directive – Council Directive 2009/147/EEC on the conservation of wild birds
EU Floods Directive – Directive 2007/60/EC on the assessment and management of flood risks
EU Groundwater Directive – Directive 2006/118/EC on the protection of groundwater against pollution and deterioration
EC Habitats Directive – Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora
Urban Wastewater Treatment Directive – Directive 91/271/EEC concerning urban waste water treatment
EU Water Framework Directive – Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy
National
Securing the Future – the UK Government Sustainable Development Strategy (2005)
Flood and Water Management Act (2010)
Flood Risk Regulations (2009)
Water for People and the Environment, Water Resources Strategy for England and Wales (2009)
Future Water, The Government's water strategy for England (2008)
Making Space for Water – taking forward a new Government strategy for flood and coastal erosion risk management in England (2005)
The National Flood and Coastal Erosion Risk Management Strategy for England (2011)
Water Act (2003)
Water Act (2014)
The National Flood Emergency Framework for England (2011)
The Carbon Plan (2011)
Building a Low Carbon Economy – the UK's Contribution to Tackling Climate Change (2008)
Climate Change Act (2008)
Biodiversity 2020: A Strategy for England's Wildlife and Ecosystems (2011)
England Biodiversity Framework (2008)
UK Biodiversity Action Plan (1994)
National Wetland Vision (2008)
Wildlife and Countryside Act (as amended) (1981)
Natural Environment and Rural Communities (NERC) Act (2006)
Salmon and Freshwater Fisheries Act (1975)
Contaminated Land (England) Regulations (2006)
Heritage Protection for the 21st Century, White Paper (2007)

Plan, Policy or Programme
National Adaptation Programme: Making the Country Resilient to a Change in Climate (2013)
National Planning Policy Framework (2012)
Regional
Regional Flood Risk Appraisal for South East England (2008)
Thames Catchment Flood Management Plan (2009)
London Regional Flood Risk Appraisal – Greater London Authority (2009)
London Plan – Greater London Authority (2013)
Thames Estuary 2100 Strategy (2002)
Managing Water Resources & Flood Risk in the South East (2005)
East London Boroughs Strategic Flood Risk Assessment (2009)
London Rivers Action Plan (2009)
Thames River Basin Management Plan (2009)
Cleaning the Air – Mayors Air Quality Strategy (2010)
The Mayor's Biodiversity Strategy. Connecting with London's Nature (2002)
Regeneration Manifesto for Public Space (2009)
Climate Change Adaptation strategy for London (2011)
Local
Preliminary Flood Risk Assessment London Borough of Greenwich (2011)
Ravensbourne River Corridor Improvement Plan (2010)
London Borough of Greenwich Local Plan (2012)
Greenwich Biodiversity Action Plan (2013)
London Borough of Greenwich Surface Water Management Plan (2008)

3.2 Summary of the review

The key themes identified by this review are shown in Table 5. A summary of the policy documents and their relevance to the Greenwich LFRMS is set out in Appendix A.

Table 5: Policies, plans and programmes reviewed through this SEA process

SEA topic	Key themes
Landscape and visual amenity	Protecting sensitive landscape assets (including National Parks and AONBs); promoting the conservation and enhancement of natural beauty and amenity of important landscapes, including inland waters; definition and protection of regional and local landscape character; and the provision and enhancement of green infrastructure to benefit people and the environment.
Biodiversity, flora and fauna	Protection of international and national designated sites and their qualifying features; preservation and enhancement of notable habitats and species, particularly those noted for their conservation value or under threat; identification of the responsibilities of organisations including local authorities to protect and enhance biodiversity including the creation of BAP habitats and promotion of BAP species; provision of new/restored habitat to enable adaptation to the impacts of climate change.
Water environment	Promote the sustainable use of water resources to meet future growth in demand and impacts of climate change; better regulation and management of the water environment to benefit water resources and flood risk, and reduce water pollution; and promotion of sustainable drainage systems (SuDS).
Geology and soils	Long term protection, improvement and sustainable management of soil quality and quantity, including the preservation of best and most versatile land; and the management and remediation of contaminated land to reduce the risk to human health and the environment, particularly soils and water quality.
Historic environment	Protection and enhancement of nationally and locally important heritage assets and historic landscapes; better integration of heritage protection within the planning regime; and providing better access to heritage sites including their promotion as an economic asset.
Population	Protect and improve human health, wellbeing and living standards; greater integration of socio-economic and environmental objectives to deliver sustainable development; promotion of prosperous, sustainable and coherent communities; provision of better public transport and access; reduction of flood

	risk; enhancement of recreation and amenity resources to benefit health and wellbeing; and development and provision of measures to enable adaptation to the impacts of climate change.
Material assets	Improvement and better management of material assets including highways and utilities infrastructure; greater provision and enhancement of green infrastructure to deliver benefits to people and the environment; and provision of better public services to deliver socio-economic benefits.
Air quality	Protection of air quality in urban areas through enhanced management of polluting emissions.
Climate	Requirements to reduce future greenhouse gas emissions across all socio-economic sectors to limit the impacts of climate change of people and the environment; and provision of measures to enable future adaptation to the impacts of climate change and increase resilience.

4 Environmental characteristics and key issues

4.1 Introduction

A search of baseline environmental information has been undertaken to identify the key environmental characteristics of the Borough. This includes details of the environmental status and condition of notable environmental features; current and future predicted trends in the evolution of the environment; and issues and problems currently affecting the environment.

The information obtained through this desk study exercise is set out in the following topic-specific sections, many of which are inter-linked. The information used to characterise the baseline environment is broadly strategic in nature and reflects the high-level objectives of the LFRMS. It has been obtained from a broad range of sources and no new investigations or surveys have been undertaken as part of the scoping process. The baseline may require updating throughout the duration of the SEA process as the LFRMS is developed further and new information becomes available.

4.2 Landscape and visual amenity

The London Borough of Greenwich is located to the south east of central London and covers an area of approximately 50km². Greenwich is a highly developed urban Borough with 35% of its area consisting of residential neighbourhoods. There are three main commercial centres: Greenwich, Eltham and Woolwich, the latter two designated as major centres for shopping and office employment[3]. The River Thames forms the northern boundary of the Borough along a 13km stretch, making it the longest waterfront in London[4].

The topography of Greenwich is broadly flat along the banks of the River Thames. It then rises steeply to the south through Greenwich Park, rising to the southeast of the Borough to its highest point at Shooters Hill at 131mAOD. This provides a superb vantage point across London and also has London's most ancient woodland believed to be approximately 8,000 years old and of exceptional ecological merit[5].

The Borough has over 14km² of open space made up of parks, ancient woodlands and Thames side paths, which represent almost a quarter of the Borough. These areas provide a positive contribution to the Borough and valuable resource that is also important for the Borough's biodiversity. There are 48 public parks, 12 of which have been awarded the Green Flag Award[6], an award scheme which sets the benchmark for a national standard for parks and green spaces in the UK. Three parks are also designated as Registered Parks and Gardens of Special Historic Interest.

The Borough has a number of designated and protected landscape features. These include three historic landscapes, three designated views and 13 local views. The local views are all from publically accessible spaces and provide panoramas and views of landmarks that provide a significant contribution to the local built and natural environment. The majority of views are towards the River Thames and London's skyline highlighting the river and London's importance to the character of the Borough. These views include:

- Shooter's Hill to Central London;
- Shrewsbury Park towards the Lower Thames;
- Castlewood towards S.E. London;
- Eaglesfield Recreation Ground towards Bexley and the Lower Thames;
- Eltham Park (North) to Central London;

[3] Local Implementation Plan http://www.royalgreenwich.gov.uk/downloads/download/289/local_implementation_plan
[4] London's Poverty Profile, Greenwich http://www.londonspovertyprofile.org.uk/indicators/boroughs/greenwich/
[5] Environment and Heritage http://greenwich-consult.limehouse.co.uk/portal/planning/cs/submission_version/core_strategy_with_development_management_policies_submission_version-_with_proposed_modifications?pointId=1372233638153#section-1372233638153
[6] Royal Borough of Greenwich Green Flag Awards http://www.royalgreenwich.gov.uk/info/200073/parks_and_open_spaces/1039/green_flag_awards

- Winns Common to the Lower Thames;
- Thames side panorama from the Thames Barrier open space;
- St. Mary's Churchyard towards Mast Pond Wharf and beyond;
- Docklands panorama from the Wolfe Monument;
- King John's Walk to Central London;
- Millennium Dome from Central Park; and
- Wolfe Monument south towards the All Saints Church in Blackheath[7].

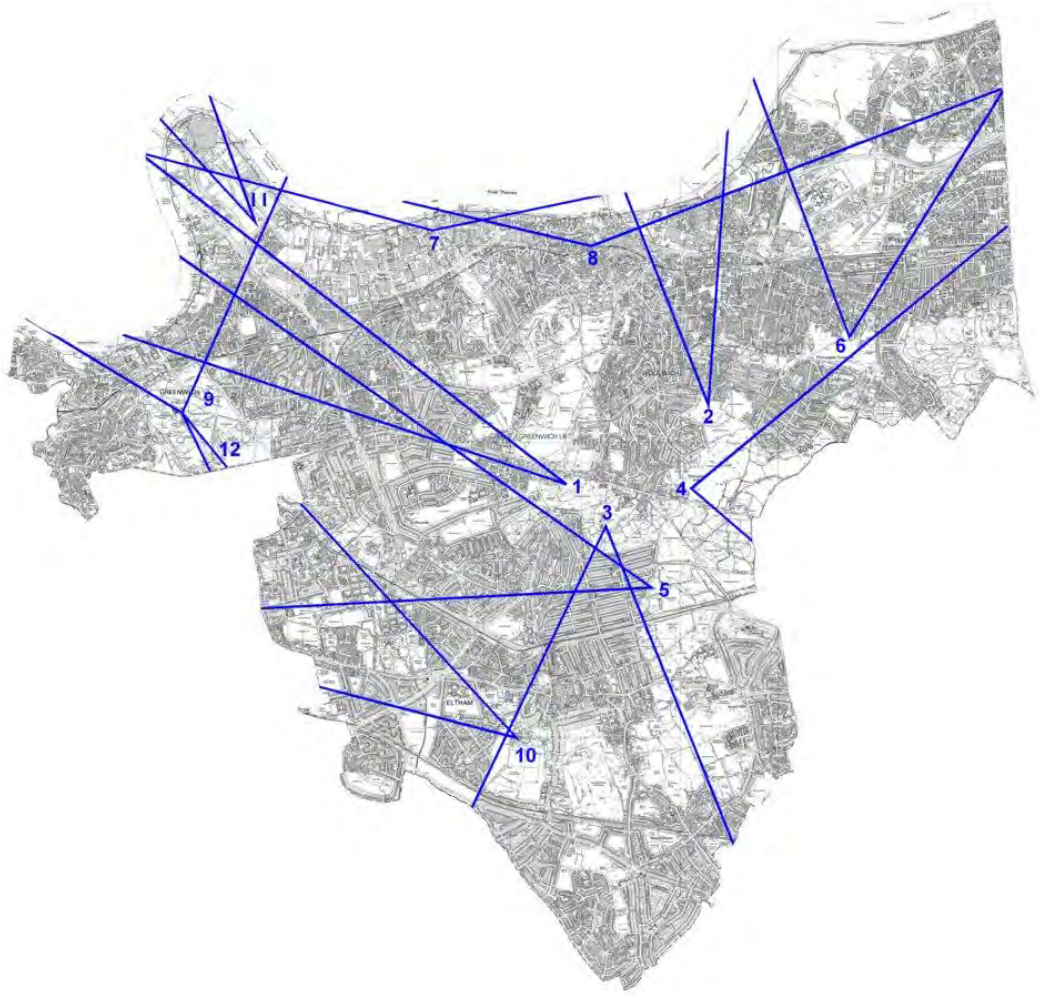


Figure 2: Important Local Views in the Borough (source: Royal Borough of Greenwich)

A small area of Greenwich, New Eltham, is designated as Green Belt land. This is protected by national and local plans and planning policies, which restrict development including new buildings and large-scale extensions. Metropolitan Open Land (MOL) is land protected in order to preserve its open character, provide breaks in built form and prevent urban sprawl. It is similar to Green Belt land where development proposals must meet stringent landscape requirements and is protected by the London Plan Policy 7.17 (Metropolitan Open Land). MOL in the Borough runs through the central, eastern and southern parts and includes Bostall Woods, Avery Hill Park and Woolwich Common.

[7] Royal Borough of Greenwich Design and Heritage http://greenwich-consult.limehouse.co.uk/portal/planning/cs/submission_version/core_strategy_with_development_management_policies_submission_version-_with_proposed_modifications?pointId=1372233638145#section-1372233638145

The Borough has a number of green and river corridors which provide important areas of open land and a valuable resource for recreation and amenity, and local wildlife. These corridors include:

- The railway line between Blackheath and Falconwood
- The Plumstead Railway cutting
- The Ridgeway in Abbey Wood/Thamesmead
- The railway line between Lee and New Eltham
- The River Thames, Ravensbourne and Quaggy
- Thamesmead canal network
- Lakes such as Thamesmead Wetlands

There are four Special Character Areas (SCA) within the Borough: Shooters Hill Golf Course, Eltham Park, Woolwich Common, and Avery Hill. These areas contribute to the Borough and London's unique character and actions have been put in place to safeguard and preserve their character, scale and quality. Skylines and distinct views both to and from these areas are also protected.

The Council has identified a number of areas with open space deficiency (defined as areas that are more than 0.4km from a local park, 1.2km from a district park and 3.2km from a metropolitan park). These deficient areas occur across the Borough and particularly in dense urban areas where development and pressure on land restricts access to local parks. The largest areas appear across the north of the Borough and are shown in Figure 3: Open Space Deficiency Areas.

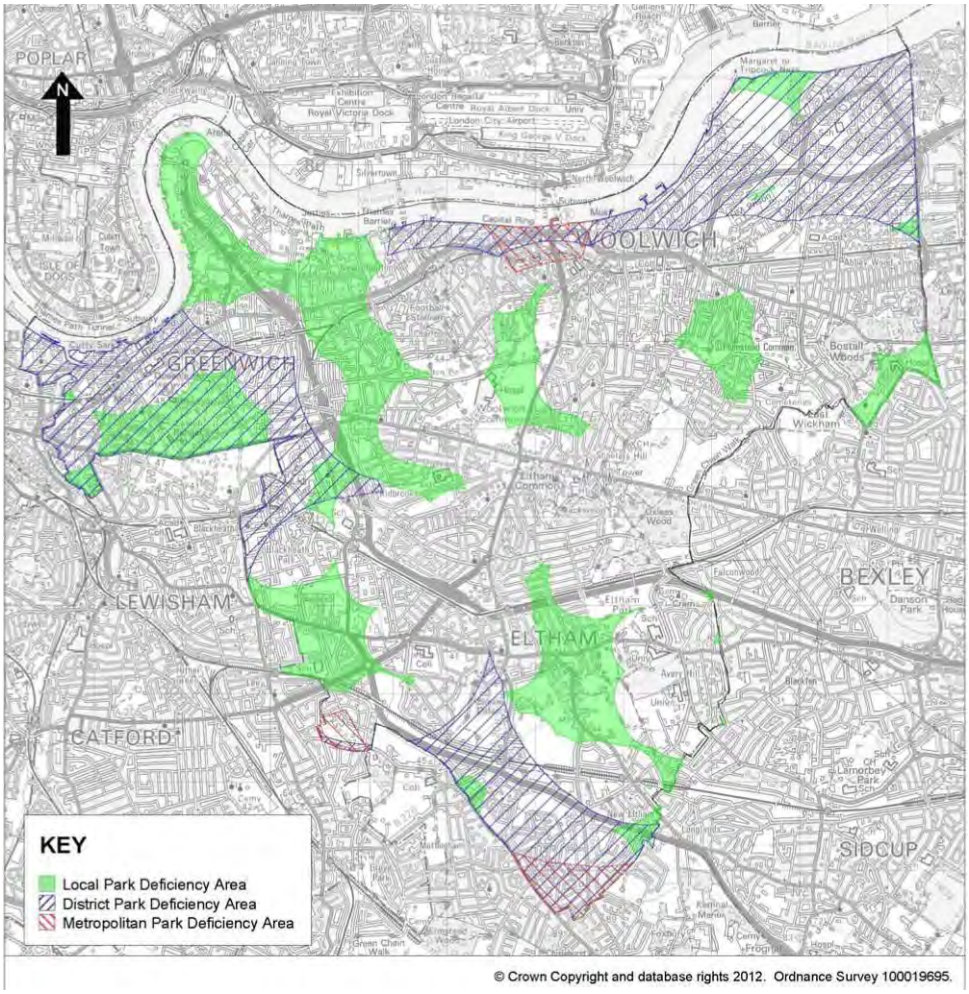


Figure 3: Open Space Deficiency Areas (source: Royal Borough of Greenwich)

The Borough is characterised by two National Landscape Character Areas (LCA): Inner London (112) and Greater Thames Estuary (81). The Inner London LCA covers south and central area of the Borough. It has been characterised as predominantly urban, forming both the centre of UK Government and is a major international hub for finance, business, tourism, transport and recreation. A key characteristic of the LCA that is predominant in Greenwich is its network of green space and green space deficiency[8].

The very north of the Borough includes a narrow strip of land following the River Thames, which is characterised by the Greater Thames Estuary. Key characteristics of this LCA include a predominantly remote and tranquil landscape of shallow creeks, drowned estuaries, low lying islands, mudflats and tidal salt marches. However, such characteristics are not present in the Greenwich section of this LCA, which is characterised by dense urban and industrial areas, where population density is high and development pressures are increasing[9].

Key environmental issues:

Greenwich is facing pressures from climate change, population growth and development. Although the Borough has a large amount of green space there are areas of public open space deficiency particularly in the northeast of the Borough. Areas of open space need to be protected and enhanced for all residents.

Flood risk management measures have the potential to affect the landscape characteristics of the Borough. This includes changes to the river corridors, impacts on existing open spaces, and impacts on the setting of local landmarks and landscape features. Many of these aspects are protected through regional and local policies, and as such could restrict the implementation of LFRMS objectives if they are shown to present a risk to the quality of the landscape.

The risk of flooding in the Borough is at its highest along the River Thames. However this area has also been identified in the London Plan as an Opportunity Area for additional housing. Existing flood defences such as the Thames Barrage provides a high level of protection. However, flood risk will still need to be managed effectively in order for the land to be developed.

4.3 Biodiversity, flora and fauna

A variety of habitat types are present within the Borough and include grasslands, watercourses and other waterbodies, wetlands, woodlands and urban gardens. There are five water bodies that flow through Greenwich: the River Thames, Marsh Dykes and the rivers Quaggy, Shuttle and Ravensbourne.[10] Wetland habitats in the Borough include ponds, lakes and rivers, and are mostly terrestrial based. The Royal Greenwich Park supports ancient parkland trees and areas of native woodland, ponds and acid grassland. At Sutcliffe Park a recent flood alleviation scheme has restored the River Quaggy to a more naturalistic course and various habitats have been created including damp grassland, reeds and wetlands. The Greenwich Pond Project aims to improve standing water habitats and to enhance the biodiversity in Greenwich Park by rejuvenating the Flower Garden Lake to the southern end of the park. Plans include the provision of a marginal/emergent vegetation zone around the lake to restore ecological function to the Flower Garden Pond and a new wildlife pond within the deer park to create a pond complex in the park[3].

4.3.1 Nature designated sites

Greenwich does not support any internationally or nationally designated sites. However, 10 such sites are located within 30km of the Borough boundary. These are:

- Lee Valley Special Protection Area (SPA)
- Lee Valley Ramsar
- Thames Estuary and Marshes SPA

[8] Natural England – National Character Area Profile 112 Inner London
http://publications.naturalengland.org.uk/publication/5360729876070400?category=587130
[9] Natural England – National Character Area Profile 81 Greater Thames Estuary
http://publications.naturalengland.org.uk/publication/4531632073605120?category=587130
[10] Ravensbourne River Corridor Improvement Plan (2012). Greenwich Council. Environment Agency.

- Thames Estuary and Marshes Ramsar
- South West London Waterbodies SPA
- South West London Waterbodies Ramsar
- Richmond Park Special Area of Conservation (SAC)
- Wimbledon Common SAC
- Epping Forest SAC
- North Downs Woodlands SAC

Two internationally designated sites are located within 9km of the Borough boundary. The Lee Valley SPA and Ramsar sites are located 9km to the north of the boundary, to the north of the City of London and the River Thames. These sites are designated for their wetland habitats and support internationally important numbers of wintering wildfowl. Epping Forest SAC is also located 9km to the north of the Borough.

The Thames Estuary and Marshes SPA and Ramsar sites are located on the south side of the Thames Estuary, 20km to the east of Greenwich. These sites support internationally important numbers of wintering wildfowl. The South West London Waterbodies SPA and Ramsar sites are located 24km west of Greenwich and comprises a series of embanked water supply reservoirs and former gravel pits that support a range of man-made and semi-natural open water habitats. The reservoirs and gravel pits are important feeding and roosting sites for wintering wildfowl. These three SPAs and Ramsar sites are not directly hydrologically linked to the Borough. Richmond Park SAC is located 16km to the west of Greenwich and Wimbledon Common SAC is 13km to the west.

There are two Sites of Special Scientific Interest (SSSI) within the Borough. Oxleas (Shooter's Hill) Woodlands SSSI is a biological SSSI which encompasses Oxleas, Jack and Shepherdleas Woods. This site is one of the most extensive areas of long established woodland in Greater London and is described as in 'favourable' condition. Gilbert's Pit SSSI is a geological SSSI which is described as 'unfavourable no change'. Gilbert's Pit is a disused chalk, sand and gravel quarry with various geological formations and fossils deposited 55 million years ago.[11] Mayon Wilson and Gilbert's Pit LNR partly encompasses Gilbert's Pit geological SSSI.

There are a number of designated non-statutory Sites of Metropolitan Importance (SMI) in the Borough. These include the River Thames and its tidal tributaries. As well as the river channel itself, habitats within the SMI include mudflats, shingle beach, inter-tidal vegetation, islands and the river banks. These habitats are limited within the Borough of Greenwich. Other SMI with wetland interest are the ponds at Royal Blackheath golf course, Blackheath and Greenwich Park. Royal Blackheath golf course supports a large population of great crested newts[12]. A number of Local Nature Reserves (LNRs) are located in the Borough. Kidbrooke LNR and the nearby Birdbrook LNR together support the most important assemblage of amphibians (Great crested newts, smooth newts and common toads) in London[13].

A series of wetland areas including Thamesmead Wetlands are located within the Borough. These largely consist of still water and reedswamp. Greenwich Ecology Park is a recently created amenity for environmental education which supports herb-rich grassland, ponds and reedswamp. Crossways Nature Reserve supports small ponds and reedswamp.[14] The floodplain grazing marsh of Marsh Dykes and its associated ditches and dykes support a variety of aquatic invertebrates and water voles and act as important wildlife corridors connecting wildlife habitat such as the River Thames and inland in the Darent and Cray Valleys, which comprise other floodplain habitat[4].

The following priority habitats are listed as part of the Greenwich Local Biodiversity Action Plan (LBAP) and each habitat has an independent Habitat Action Plan (HAP):

- Acid grassland and Heathland
- Gardens

[11] Natural England (2013)
[12] Royal Borough of Greenwich Council (2013).
[13] The Kidbrooke Kite (2012). http://www.kidbrookekite.co.uk/
[14] Natural England (2011). London's Natural Signatures: The London Landscape Framework 14. Lower Thames Floodplain.

- Parks & open spaces
- Wasteland
- Waters edge
- Rivers
- Ponds and Wetlands
- Woodland

The following priority species are listed as part of the Greenwich Local Biodiversity Action Plan (LBAP) and each species has an independent Species Action Plan (SAP)[15]:

- Bats
- Black redstart
- Black poplar
- Hedgehog
- Stag beetle
- Water vole

Water vole is Britain's fastest declining mammal, but London's watercourses remain one of the species strongholds. Water vole is recognised as a flagship species in the London biodiversity Partnership Rivers HAP[4]. Artificial habitats for water vole have been incorporated into redevelopments such as those at Sutcliffe Park.

Japanese knotweed, Himalayan balsam, giant hogweed and Australian swamp stonecrop have been recorded at a few sites in the Borough, together with isolated occurrences of water fern and floating pennywort. Water primrose has recently been confirmed at Kidbrooke Green nature reserve and is undergoing a programme of removal by the Environment Agency[16].

Flooding has the potential to cause the spread of these species through the movement of seeds and plant fragments, and flood risk management works in these locations could lead to the spread of these species.

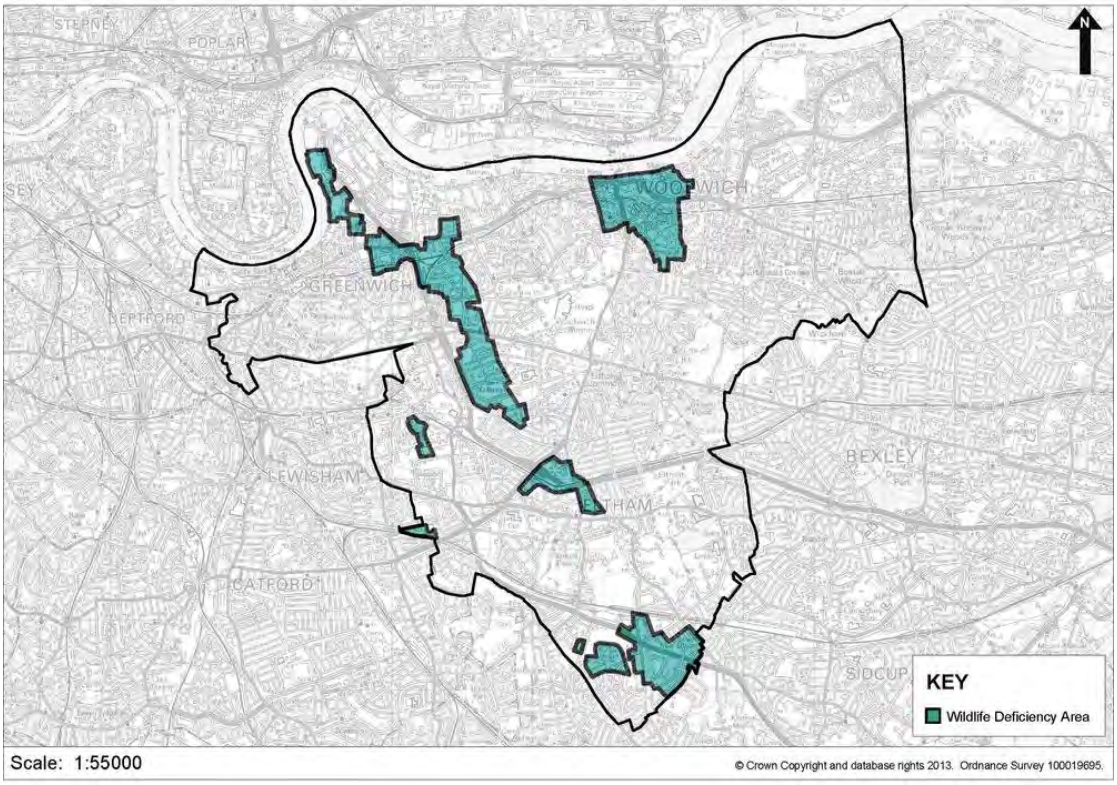


Figure 4: Wildlife Deficiency Areas (source: Royal Borough of Greenwich)

[15] Royal Greenwich Biodiversity Action Plan (2010) Greenwich Council
[16] Environment Agency (2013) Royal Borough of Greenwich Environmental fact sheet

4.3.2 Fisheries

The tidal Thames supports a mixture of freshwater, estuarine and marine fish including species such as bream, dace, eel, sea trout, bass, flounder and smelt. The Thamesmead system supports a fishery that is dominated by roach and bream with carp and pike also present in the lakes. A characteristic of the system is the regular seasonal movement of the fish from the lakes to the canals in the winter, with fish returning to the lakes in the summer months[4].

Commercial eel fishermen operate in the tidal Thames in Greenwich. Eel populations in the tidal Thames are currently considered sustainable, and stocks are carefully monitored by the Environment Agency.

Inter-tidal habitat is limited on the tidal Thames through London. New developments such as flood defence works in Deptford Creek, have created valuable foraging habitat for fish. Fish populations should also benefit in the long term from the London Tideway Tunnels project which aims to improve the water quality in the Thames.

Local coarse fisheries in the Borough are located at the Dell and Woolwich Dockyard and Birchmere and Gallions Lake in Thamesmead. These fisheries support carp, roach, bream, silver bream, dace and perch. The fishing lakes and ponds are vulnerable to water quality problems resulting from algal blooms during hot weather leading to fish mortalities.

Improvements to the river channels within the Ravensbourne catchment have locally increased the suitable habitat for fish with the creation of pools and riffles to help maintain oxygen levels and sufficient depth of water during periods of low flow. The Ravensbourne has been restocked the river with chub and dace by the Environment Agency. Populations of species such as trout generally remain isolated due to the fragmented sections of the river and limited areas of suitable spawning gravels[9].

Key environmental issues:

A number of nature designated sites and other sites, such as Greenwich Park, Kidbrooke LNR and Marsh Dykes support ponds and wetland habitats and act as wildlife corridors linking wetland habitat within areas of the Borough. These habitats are largely dependent upon the underlying hydrological conditions and are therefore vulnerable to flooding and changes in underlying soils, hydrology and habitat. The Borough also supports a number of species, particularly amphibians which are reliant on aquatic and riparian habitats and subsequently are at risk from flooding events, poor water quality and habitat changes.

Future incidences of flooding could potentially damage and change the nature of habitats and supporting species composition within the nature designated sites within and outside the Borough. The LFRMS will need to consider whether any flood risk management measures will lead to adverse impacts on the water bodies within the Borough and whether the LFRMS can help contribute to delivering any mitigation measures such as through improvement to fish passage.

4.4 Water environment

4.4.1 Water resources

There are five watercourses that flow through Greenwich: Marsh Dykes, the River Quaggy (known as Kyd Brook in its upper reaches), the River Shuttle and the River Ravensbourne that extends across the boundaries of the Borough and joins the River Thames at Deptford Creek. The River Ravensbourne rises in the Borough of Bromley and flows northwards to Greenwich before its confluence with the River Thames at Deptford Creek. The Quaggy rises in Bromley and flows through Greenwich before joining the Ravensbourne in Greenwich. The River Shuttle is a small tributary of the River Cray. The Shuttle rises at two or more springs in Greenwich at the junction of the permeable Blackheath Beds and the denser Woolwich Beds. It then flows through the Borough of Bexley before joining the River Cray. Marsh Dykes is a network of ditches that extends into the London Borough of Bexley. Numerous other small streams and surface water outfalls join the main river between its source and confluence.

Greenwich lies wholly within the Thames Water region, which supplies around 2,600 million litres of tap water to 9 million customers across London and the Thames Valley. The

River Thames is the primary source of public water supply in London. Two-thirds is taken from the freshwater Thames with an additional 22% taken from the River Lee. The remainder is taken from groundwater. The Borough falls within the 'London Water Resource Zone', which has been designated as an area that is 'seriously water stressed'[17] and also falls into the London Catchment Abstraction Management Strategy (CAMS) area. This area has been assessed as having 'no water available' and currently services a number of important abstractions, mostly for public water supply, but also for spray irrigation and agriculture. Average consumption in Greenwich in 2011/12 was 165 litres per person per day (pp/pd), which are in line with the London average of 163l pp/pd, but higher than the UK average of around 145l pp/pd.[9] Household water usage has remained relatively constant over the past decade.

The River Quaggy (together with its tributary Kyd Brook) is the major surface water resource for abstraction in Greenwich. However, the availability of water from this source is restricted. The major chalk aquifer that underlies much of London is the major groundwater resource for abstraction.[18] The chalk aquifer is assessed as over-licenced and is managed to avoid groundwater flooding of London's deep infrastructure. There are 16 licensed abstractions in the Borough, which are mainly for industrial use but also for public water supply and minerals. Twelve of these abstractions are taken from the chalk aquifer.[19]

Pressure on water resources will continue to increase in the future and corresponding annual flows in River Thames by the 2050's could be over 10% lower when compared to today's values[9]. These issues are linked to increasing population growth in the Borough and in Greater London, and the impacts of climate change, which could lead to hotter and drier conditions and more erratic rainfall events.

4.4.2 Water Framework Directive

The Royal Borough of Greenwich is covered by the Thames River Basin Management Plan (RBMP), which identifies the current quality of water bodies in the Borough and sets objectives for making further improvements to their ecological and chemical quality. The River Thames, Ravensbourne, Quaggy and Shuttle are classified as Heavily Modified Water Bodies (HMWB) and as priority water bodies for improvement action under the Water Framework Directive (WFD).

Surface water bodies in Greenwich are classified as Moderate or Poor under the WFD and are generally improving across the Borough with the exception of the Ravensbourne (Catford to Deptford section), which declined from Poor to Bad between 2009 and 2012, due to pollution and misconnected drains. The biological status is Poor. In terms of macro-invertebrates, the rivers are classified as Moderate or Poor and are also Poor for fish. Physio-chemical status is described as Moderate, although not all waterbodies have been assessed.[4]

4.4.3 Surface water quality

Water pollution does not tend to be a major issue in Greenwich. One major (Category 1) incident was recorded in 2007, which was due to authorised activity at a pumping station from overloading during a storm resulting in a discharge of sewage and urban run-off. Between 2005 and 2012, five significant (Category 2) and 59 minor (Category 3) water pollution incidents were recorded. The causes were control and containment failures, natural causes and authorised and unauthorised activities. There is no Sewage Treatment Works (STW) in Greenwich, which is served by Crossness STW in south-east London.

Pressures on water quality and factors preventing waterbodies reaching Good status generally arise from the urban nature of catchment. A number of pressures and risks have been identified for Greenwich which are contributing to preventing waterbodies reaching Good status and can adversely affect river ecology and water quality, these include:

- Invasive non-native species
- Misconnected domestic drains
- Pollution

[17] Areas of Water Stress: Final classification. Ref Code GEH01207BNOC. Environment Agency.
[18] Greenwich London Borough Environmental Factsheet (2013). Environment Agency
[19] Environment Agency (2011) Royal Borough of Greenwich Environmental fact sheet

- Physical or morphological alterations.

4.4.4 Groundwater quality

Groundwater provides vital resources for public water supply and industry. Impacts on groundwater are broadly related to land use. A number of pressures and risks have been identified for the Borough and include:

- Abstraction and flow regulation
- Misconnected domestic drains
- Diffuse pollution sources – road run-off, pollutants from domestic and agricultural sources
- Inputs of nitrates, pesticides, solvents and hydrocarbons.

Greenwich lies within a Groundwater Vulnerability Zone for a major aquifer and is classed as High or Intermediate. It also lies within a Drinking Water Protected Area with the drinking water status is classed as at risk[9].

4.4.5 Flooding

The area of land within flood zones 2 and 3 is predominantly in the north of the Borough, where the risk is from the tidal River Thames. Other areas include the land around the River Quaggy in the south west of the Borough.

Approximately 27,000 properties are in areas at risk of flooding from river and tidal sources in Greenwich, which accounts for 23% of all properties in the Borough. The Environment Agency's National Flood Risk Assessment (Nafra) shows that 84% of these properties are within areas where the likelihood of flooding is low due to protection from defences, including the Thames Barrier. Over 14,7oo properties in the Borough were registered to receive flood warnings in March 2013.[6]

Historically flooding has occurred in Greenwich in 1928, 1953, 1965 and 1968. The flood event in 1928 occurred in the north of the Borough, around Greenwich, with small areas of flooding from the tidal Thames. In 1953 extensive flooding occurred along the tidal Thames to the north east of Greenwich. This area is now protected by the Thames tidal defences. The flooding in 1965 and 1968 was a result of fluvial flooding from the Kyd Brook and River Quaggy to the south-west of the Borough. A flood alleviation scheme was completed on the River Quaggy in 2007 with flood storage areas created at Sutcliffe Park to protect 586 properties from a 1 in 70 flood event[6].

Key environmental issues:

Greenwich falls within the Thames Water's 'London Water Resource Zone', which is identified as seriously water stressed with water resources under high demand. Pressures include population growth and development, water demand, climate change, leakage rates and meeting ecological requirements under the WFD. Measures to help meet future demands include desalination plants or reusing effluent and restrictions on usage.

Rivers currently fail to meet Good Ecological potential under the WFD. The LFRMS will need to consider whether any flood risk management measures will lead to adverse impacts on the water bodies within the Borough and whether the LFRMS can help contribute to achieving WFD objectives and improving water quality in the Borough. The LFRMS needs to ensure that, by improving drainage and reducing flood risk in the Borough, the requirements of the Water Framework Directive (WFD) are considered. Important factors that need to be protected include drinking water quality, groundwater and human health, and there should be no adverse impacts on the hydrological regime of various aquatic habitats.

4.5 Soils and geology

The Lower Thames Floodplain Natural Landscape Area covers the tidal Thames and its associated floodplain. The boundaries of this area coincide with a wide band of alluvium, laid down by the river, which has created a broad, level corridor of around 3.5km width through the heart of the city. A broad terrace of river gravels (of the Black Park Gravel Formation) has been deposited over the alluvium within the Vauxhall, Lambeth and Southwark areas. Within

the broad alluvial floodplain, the river channel meanders from the margins of the North Thames Gravel Terraces to the southern river bank at Greenwich. In general, the gravel terraces to the north of the floodplain rise less abruptly than those to the south, where a ridge has formed by more resistant bedrock (where the gravelly sands and clays of the Lambeth Group are capped by the pebbly beds of the Harwich Formation). The higher areas of the Borough consist of a sedimentary layer of gravelly soils, known as the Blackheath Beds, which spread through much of the south-east over a chalk outcrop with sands, loam and seams of clay at the lower levels by the river.[20]

Plumstead Common contains deposits of puddingstone, a conglomerate rock formed during a period of global warming 60 million years ago. Gilbert's Pit SSSI is a geological SSSI and an important Lower Tertiary site, displaying one of the most complete sediment sequences in Greater London. The Paleocene Thanet and Woolwich Beds date to around 55 million years ago, with the beds yielding many fossils of plants, sponges, molluscs, fish and reptiles.

Greenwich Peninsula was heavily used for industrial purposes in the past. A large gasworks, power station and other industries in the late 20th century has resulted in areas of heavily contaminated wasteland.

There is one recommended Regionally Important Geological Site (RIGS) in the Borough: Dog Rocks. This site was recommended for designation under the London Plan Implementation Plan and has yet to be designated.

Key environmental issues:

Flooding events could alter the extent or duration of flooding and therefore the LFRMP will need to consider implications for soil quality, contaminated land and the underlying geology. Impacts on soil quality could then affect other environmental receptors, such as habitats and nature conservation sites that are reliant on the underlying soil characteristics.

4.6 Historic environment

The Royal Borough of Greenwich is reknowned for its naval and architectural heritage and for Greenwich Mean Time, the standard for the world's time zones since 1884.

During Medieval times, the Greenwich area was quarried for chalk, gravel and brickearth used for barge beds on the river shore, lime burning and brick making. Burial mounds in Greenwich Park and the church of St Alfege date from the Saxon period, and marks the martyrdom of the Saxon saint. In 964AD King Edgar granted land to St Peters Abbey in Ghent which was later repossessed in 1414 by King Henry V.[21] Greenwich Palace was built on the waterfront in 1477 for the Duke of Gloucester who enclosed Greenwich Park. It became residency for a number of Kings most notably Henry VIII until the Palace of Whitehall was built in the 1530s. The University of Greenwich and Trinity Laban Conservatoire now stands in its place.

Eltham Palace was also inhabited by royalty in 1305 with Edward II and later, Henry VII, resident there. It was later abandoned and turned in to a private residence, before being restored in the 20th century and allocated to the army in 1944. In 1992 English Heritage restored the house and gardens and opened it to the public in 1999[22]. Ship building took place along the banks of the River Thames at Dartford and Woolwich from 16th Century continuing until 1869.

Historic sites in the Borough include:

- Ten scheduled monuments: these are historic sites of national importance and include a burial mound, Anglo-Saxon cemetery, Romano-Celtic Temple, Greenwich Observatory and Eltham Palace

[20] Natural England (2011) London's Natural Signatures: The London Landscape Framework. 17 South London Clays and Gravels.
[21] East Greenwich Conservation Area Appraisal 2010
[22] Royal residences of Greenwich
http://www.royalgreenwich.gov.uk/info/200064/local_history_and_heritage/1056/royal_residences_of_greenwich

- Five hundred and thirty four Listed buildings: these are statutorily designated and include 28 Grade I listed buildings, which includes The Royal Observatory wall and clock, Royal Naval College and National Maritime Museum.
- Four historic parkland areas: these are sites included on the Register of Parks and Gardens of Special Historic Interest: Eltham Palace, Greenwich Park, Well Hall Pleasaunce and Repository Woods
- Twenty Conservation Areas: these are located in both urban and park areas and include the town centres of Blackheath, Greenwich, Greenwich park, Eltham Palace, Woolwich Common and Plumstead Common.
- There is one World Heritage Site - In 1997, Maritime Greenwich was added to the list of World Heritage Sites, for the concentration and quality of buildings of historic and architectural interest. These can be divided into the group of buildings along the riverfront, Greenwich Park and the Georgian and Victorian town centre.

The Borough's Heritage at Risk Register (2012) identifies one scheduled monument under threat, a further 21 listed buildings and one place of worship at risk. The number of listed buildings and scheduled monuments at risk as a result of neglect, decay or inappropriate development has remained the same since 2009. In 2009 there were no places of worship at risk, this rose to one in 2011 and currently remains at risk.

Throughout the Borough there are a number of heritage assets that are not designated as scheduled monuments but are of archaeological interest. In order to recognise these assets an appraisal by English Heritage was undertaken to highlight Areas of High Archaeological Potential (AHAPs) in the Borough. This identified a wide area of potential along the River Thames in the north of the Borough with smaller areas identified throughout the rest of the Borough[23].

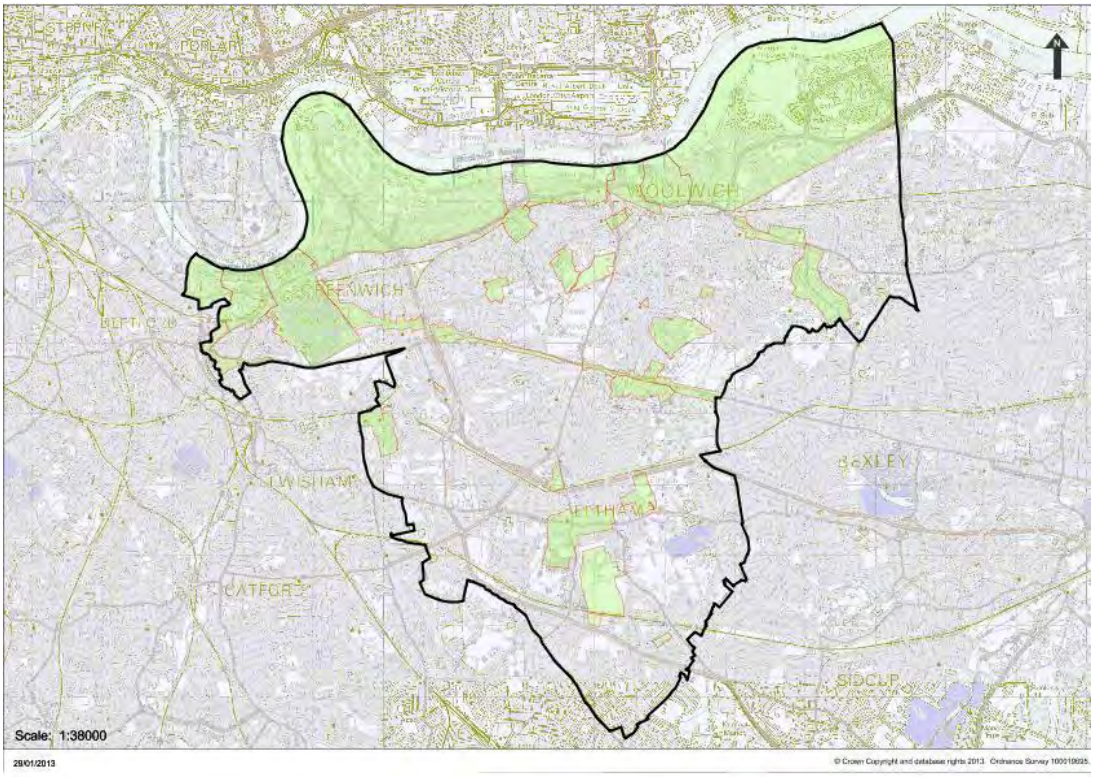


Figure 5: Areas of High Archaeological Potential (Source: Royal Borough of Greenwich)

Key environmental issues:

[23] Royal Borough of Greenwich Core Strategy Archaeology http://greenwich-consult.limehouse.co.uk/portal/planning/cs/submission_version/core_strategy_with_development_management_policies_submission_version-_with_proposed_modifications?pointId=1372233638145#section-1372233638145

Greenwich contains a wealth of historic sites including a World Heritage Site. However, a number of the most important of these sites are currently assessed as being under threat. There is a risk that adverse impacts upon aspects of Greenwich's cultural heritage could arise from flooding and increased flood risk in the future, whilst the construction and implementation of the flood risk management options selected by the LFRMS could also have adverse effects. Potential benefits may also arise from reduced flood risk to assets as a result of implementation of the LFRMS. However, it should be noted that some archaeological assets require waterlogged conditions to preserve them.

Development within AHAPs may require preliminary archaeological site investigations assess and plan the impact that a proposed development could have on potential archaeological remains in the area.

4.7 Population

The Borough's population in the 2011 census was approximately 254,600, which is an increase of approximately 18.67% since 2002, the 6th highest growth of all London boroughs. This is more than the England national average of 6.9% increase over the same period, and London's average of 14%[24]. Population is predicted to continue to rise, with an increase of approximately 21% between 2011 and 2021, and 26% in the 20 years between 2011 and 2031.[25]

Between 2002 and 2011 there has been an increase in persons aged under 64 living in the Borough and a decline in the number of older persons there. The percentage of people in the age groups of 0-15 and 16-64 are above the national and London averages with 21.7% 0-15 year olds (the national average being 18.9%) and 68% 16-64 year olds (the national average being 64.7%) respectively.

Greenwich's population for working age people (20-64 year olds) is 62.9%, which is below London's average of 64.4%. It is however, higher than the England and Wales average of 59.6%. The employment rate (proportion of people in employment as a percentage of the working age population) for the Borough has increased steadily from 2010 to 2012 with 69.6% employment rate which is above London's average of 68.9%[26].

The average household size in Greenwich increased from 2.28 to 2.48 in the 10 year period to 2011, which challenges the broad assumption that household size is generally in decline. The number of households across the Borough increased by 8.86% between 2001 and 2011 to 101,000, which is the 12th highest increase of all London boroughs. Property types vary and include houses, flats and bungalows, with the most common type of accommodation being purpose built flats. Approximately 63.1% of dwellings are private households, with 35.9% local authority or other social rented households.

4.7.1 Health

The Association of Public Health Observatories 2012[27] health profile report for Greenwich shows that in general the health of people in Greenwich is worse than the England average. However there are some exceptions, which include levels of GCSE attainment, alcohol-specific hospital stays for under 18's, smoking during pregnancy, adult health eating and adult obesity, all of which are better than the England average. The key causes of death in Greenwich remain circulatory disease, cancer and respiratory disease all of which are above the England average. However, the rates fell between 2001 and 2010 and life expectancy across the Borough, like elsewhere across the country, has increased over the last 20 years although is still below the England average for both men and women.

Several health related priorities have been identified by the Council in the Borough. These include extending prevention programmes, reduce smoking prevalence, tackling childhood obesity and reducing domestic violence.

[24] Census Information Scheme GLA Intelligence 2011 Census first results July 2012 http://data.london.gov.uk/datastorefiles/documents/2011-census-first-results.pdf

[25] Royal Borough of Greenwich Population Data http://www.royalgreenwich.gov.uk/info/200088/statistics_and_census_information/114/population_data

[26] Royal Borough of Greenwich Employment Figures http://www.royalgreenwich.gov.uk/info/200088/statistics_and_census_information/118/employment_figures

[27] Greenwich Health Profile 2012 Department of Health http://www.apho.org.uk/default.aspx?RID=49802

4.7.2 Deprivation

Social deprivation is an issue in the Borough, as is the case across London with Greenwich the 8th most deprived borough in London. The Index of Multiple Deprivation provides a measure of relative deprivation across England and was most recently published in 2010. Deprivation is not spread evenly across the country with Greenwich being the 28th most deprived Borough in England.[28]

The worst areas of deprivation in Greenwich are in the north along the River Thames with concentrations also in the south of the Borough. The wards with extreme deprivation include Abbey Wood, Eltham West, Glyndon, Greenwich West. The wards in the bottom 5% most deprived include Woolwich Common and Woolwich Riverside.[29]

Key environmental issues:

The population and number of households in the Borough are set to increase with the biggest growth expected to concentrate in the wards of Peninsula, Woolwich Riverside and Eltham West. General health varies across the Borough with some health issues worse than the England average, including life expectancy. Deprivation is associated with poorer quality environments, poverty and poor health. However, major development and regeneration plans are also proposed in these areas which will help to contribute to the priorities of crime, health, education and business growth set out in the core strategy[30].

This growing population will place increased demand on a range of resources and the Borough's water and sewerage infrastructure, which could be exacerbated by the effects of climate change. Linked to this may be increased demands for development and pressure on the existing housing provision, which may result in greater need for development in areas at risk of flooding.

4.8 Material assets

The Borough benefits from a range of transport infrastructure. There are three main railway lines which provide links into central London and Kent. The Docklands Light Railway (DLR) with four stations in the Borough provides access to economic and social opportunities and was recorded to have served just under eight million passenger journeys in 2012. There are also 40 bus routes in the Borough. There are also plans for a new cross rail link to link east and west London with a high frequency rail service. This will travel through the north of the Borough with stations in Woolwich and Abbey Wood.

The major roads in the borough include:

- A102 which provides access across the River Thames through the Blackwell Tunnel;
- A206 travels across the north of the Borough;
- A205 south circular linking to the North Circular Road via the Woolwich Ferry;
- A207 Shooters Hill Road which follows the route of the former Watling Street Roman Road;
- A2 Rochester relief road forming part of the London Strategic Road Network passing through the borough east-west into the centre of London.

There are 86km of cycle routes across the Borough; the most notable one is National Cycle Route 1: The Thames Path which runs along the southern bank of the River Thames. It is a long distance route connecting Dover and the Shetland Islands. There are also a number of small circular routes in the south of the Borough.

[28] English Indices of Deprivation 2010 http://www.london.gov.uk/sites/default/files/Briefing-2011-06-Indices-Deprivation-2010-London.pdf

[29] London's Poverty Profile, Greenwich http://www.londonspovertyprofile.org.uk/indicators/boroughs/greenwich/

[30] London Borough of Greenwich Core Strategy http://greenwich-consult.limehouse.co.uk/portal/planning/cs/submission_version/core_strategy_with_development_management_policies_submission_version-_with_proposed_modifications?pointId=1372233638148#section-1372233638148

There is one ferry crossing: Woolwich Ferry service providing a link across the River Thames. However, the Core Strategy highlights the need to improve and increase cross river links[31].

There are however some areas in the borough that suffer from poor transport links and highlighted to be between employment areas in the north and residential areas in the south such as Kidbrooke and Eltham. Transport links are also poor in Thamesmead and Charlton Riverside. This hinders industry, development and regeneration exacerbating poverty and social inclusion[32].

The Thames Gateway is considered to be the largest regeneration project in Europe over the coming 20 years with 120,000 new homes expected to be built and 180,000 new jobs created[4]. As part of the Thames Gateway development which incorporates 12 London boroughs, there are plans to build approximately 25,950 within the Borough of Greenwich, the second largest housing target of all London boroughs[33]. The London Plan has identified a number of Opportunity Areas where the majority of the proposed housing will be built, in Greenwich these areas are focused along the Thames waterfront.

4.8.1 Economy

The fastest growing business sector in the Borough is IT and Communications centred around Greenwich Town Centre, the Digital Peninsula in Greenwich, and Woolwich. Creative Industries are also growing fast in the Digital Peninsula, Woolwich, west Greenwich and Charlton. Tourism is a key sector that benefits from the Boroughs rich cultural heritage. Employment in the retail sector accounts for just under a fifth of the Boroughs employment.

There are proposals for two new urban quarters in the Borough at Charlton Riverside and Greenwich Peninsula to replace the existing low density industrial units in these areas. In Charlton Riverside employment areas will be consolidated to maximise land use, development of 3,500 new dwellings and new provision for open space will be provided. Out of town retail will be reduced in this area.

4.8.2 Green Infrastructure

In addition to the traditional material assets identified above, the Borough contains a range of significant green infrastructure and public green spaces, which positively contribute to public health and wellbeing, as well as the wider environment. Open space contributes to 30% of the total area of Greenwich Borough and is made up of Metropolitan Open Land, Green Belt, Green Chain and Community Open Space.

The South East London Green Chain forms a 64km green network of footpaths and open spaces including historic parks, ancient woodlands, allotments and commons. The Green Chain extends through the London Boroughs of Bromley, Bexley, Greenwich and Lewisham and is a valuable recreation amenity, landscape and wildlife resource for the wider south east London Boroughs. The Green Chain runs up from the south along the east of the Borough and continues up to the River Thames in the North. It also forms part of one of London's strategic walking routes, the 'Capital Ring', a 126km walk around London.[34]

Key environmental issues:

The Borough experiences good internal and external transport links. However, there are areas that have been identified where there is a lack of transport prevision, this and the predicted increase in population will place greater pressure on the transport network, which could be exacerbated by increased future development pressure.

[31] London Borough of Greenwich Core Strategy Infrastructure and Movement http://greenwich-consult.limehouse.co.uk/portal/planning/cs/submission_version/core_strategy_with_development_management_policies_submission_version-_with_proposed_modifications?pointId=1372233638149#section-1372233638149

[32] London Borough of Greenwich Core Strategy http://greenwich-consult.limehouse.co.uk/portal/planning/cs/submission_version/core_strategy_with_development_management_policies_submission_version-_with_proposed_modifications?pointId=1372233638149#section-1372233638149

[33] Spatial Strategy http://greenwich-consult.limehouse.co.uk/portal/planning/cs/submission_version/core_strategy_with_development_management_policies_submission_version-_with_proposed_modifications?pointId=1372233638136#section-1372233638136

[34] London Borough of Bromley UDP South East London Green Chain Policy G7 http://www.bromley.gov.uk/UDP/written/cpt8.htm

Flooding of transport assets has the potential to cause disruption to movement of residents, commuters and emergency services. This could have short-term impacts on the local and regional economies, and longer-term impacts on transport planning, utilities provision and social mobility.

Flood risk management measures, such as flood defences, have the potential to impact upon cycle routes and footpaths along river corridors. New development should complement the core strategy for sustainability in Greenwich. New infrastructure should ensure accessibility through walking and cycling is promoted and enhanced as part of the development process.

4.9 Air quality

Greenwich falls into London's low emission zone which affects a number of older, diesel vehicles including lorries and buses. Periodic reviews of air quality in the Borough are undertaken for a range of potentially harmful substances. These are required to meet the targets set by the Government's Air Quality Strategy. National air quality objectives (AQOs) have been designated for the following contaminants: ground level ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulphur dioxide (SO_2), particulates, Benzene, 1,3-Butadiene and Lead. If further assessments verify the original finding of excessive contaminant concentrations, the area is designated as an Air Quality Management Area (AQMA) for which objective contaminant levels are set and strategies to achieve them drawn up.

The air quality review and assessment in Greenwich found that targets for nitrogen dioxide (NO_2) and particles (PM_{10}) would be exceeded in the Northern part of the Borough and at locations close to the most congested roads. Five AQMAs were consequently declared in June 2001.

Key environmental issues:

Generally, air quality in the Borough meets the targets set by the government in the Air Quality Objective (AQO). However, greater pressures on air quality may occur in the future through increases in the population of the Borough, greater development and increased traffic congestion. This could lead to the designation of additional AQMAs to address local impacts on air quality. The LFRMS is not likely to impact on air quality in the Borough, with any impacts, such as through increased flood risk management activities, unlikely to be significant.

4.10 Climate

Greenwich experiences a relatively stable climate with mild variations between average highs and lows. The average annual temperature high is 15.2°C and low temperature is 7.5°C. The area experiences adequate rainfall year round, with 110.4 precipitation days each year and an average annual rainfall of 591mm[35] compared to the UK average of 557.4mm[36].

Emissions for Greenwich in 2008 totalled 1,233 kilotonnes (kt) with domestic emissions accounting for 39% of the Borough total. Taking into account the demolition of old buildings and the construction of new more energy efficiency buildings, it is expected that emissions from the domestic sector will rise by 1.5kt per annum (pa) with a total rise of 67 kt/pa by 2050. Transport emissions were found to account for 25% of the total with the largest proportion arising from private car travel. An increase of 188.6 kt/pa from the transport sector is predicted by 2050. Commercial and industrial emissions account for 37% of the Borough total with growth in this sector expected to contribute an extra 1300 kt/pa by 2050. Per capita CO_2 emissions of 6.2 tonnes per capita have been recorded in Greenwich compared to the London average of 6.9[37].

Greenwich Peninsula was heavily used for industrial purposes in the past. Remaining industry includes Alcatel, a recently closed (2009) glucose plant and two large marine aggregate terminals. One of the two gas holders also remains. Recent development has included infrastructure, residential, commercial space and the former Millennium Dome. Continued residential regeneration is ongoing.

[35] Weatherbase. (2013). www.weatherbase .com.
[36] Met Office (2013) http://www.metoffice.gov.uk/public/weather/climate/city-of-london#?tab=climateTables
[37] AEA Energy and Environment/DEFRA 2005

The UK Climate Projection (UKCP09) provides probability-based projections of key climate variables, such as temperature and rainfall at a higher geographic resolution than has previously been available. Projections are based on the Intergovernmental Panel on Climate Change's 'business as usual' emissions scenario. .

Current predictions indicate towards significant and more variable temperature and rainfall predictions in future. Also expected are greater peak temperatures and prolonged hot periods. Summer mean temperatures are predicted to rise, on average, by 4.5 degrees. Minimum temperature rise is expected to be no less than 2.4 degrees Celsius and maximum rise is not expected to exceed 7.5. Winter mean temperature is also expected to increase - however by a lesser amount. The average, predicted rise is 3.7 degrees, while the minimum increase expected is 2 degrees and the maximum 5.7 degrees Celsius[38].

Key environmental issues:

The projected rise in temperatures, sea level and weather extremes through climate change could affect the magnitude and frequency of extreme flows along water courses within the Borough with a resulting unpredictable loss or gain of certain habitats and species. Inevitable changes to vegetation composition may occur with certain communities becoming vulnerable to extreme hydrological conditions. With rainfall frequency and intensity set to significantly increase in the coming decades, the likelihood of river flooding and overwhelming of drains and sewers will rise due to the increased surface runoff. This in turn will lead to localised flood events and increased erosion. To accommodate the increased likelihood of such events the LFRMS must implement measures aimed at coping with them.

If such climate change projections are realised, the adverse risk and impact toward Greenwich's infrastructure, public health and the natural environment has the potential to be great.

With regard to the natural environment changing climate, mainly that of changing temperatures poses the biggest threat. Species and habitat abundance and richness will become threatened as a result of changing habitats, drier soils and increased competition from invasive species throughout the Boroughs watercourses.

The LFRMS options, could potentially, both directly and indirectly, lead to an increase in greenhouse gas emissions as a result of construction and maintenance activities. Emissions could be reduced by selecting, sustainable building practices and materials.

4.11 Scoping conclusion

Following a review of this environmental baseline data it was possible to scope out air quality as an SEA issue as it is unlikely that there will be a significant environmental impact on air quality in the Borough from implementation of the LFRMS. A summary of the scoping conclusions are given in Table 6 below.

Table 6: SEA scoping assessment summary

Receptor	Scoped In	Scoped Out	Conclusion
Landscape and visual amenity	The landscape qualities and integrity of the Borough could be affected by changes to flood risk or land use/management, including new development whilst increased flood risk could impact on locally important urban landscapes and landscape features.		Flood risk management could potentially impact on local landscape features, potentially within areas of open green space and other locally important landscape areas.
Biodiversity, flora and fauna	National and locally important biodiversity sites, features and species, including SSSIs, SNCIs, LNR and BAP habitats and species where these may be affected by the water environment and flooding.	International nature conservation sites (e.g. SAC, SPA, Ramsar site) due to their significant distance from the Borough and because they are not hydrologically linked.	There are a number of SSSIs, SNCIs and LNRs within Greenwich at risk from flooding. Future incidences of flooding could potentially change the underlying nature of habitats and the LFRMS policies may present opportunities for biodiversity gain.

[38] Met Office 2013.

		Therefore, they are unlikely to be affected by flooding events within Greenwich (see Section 4.12 for further information).	LFRMS measures could improve the river channel by removal of blockages, which would be of benefit to fish passage.
Water environment	Flooding has the potential to impact on the level of water availability, the quality of the watercourses within the Borough and the WFD objectives. There is the potential for indirect impacts on water dependent designated sites/species.		Flood risk management measures could potentially affect the water environment both positively and negatively. The LFRMS could give rise to changes in flood risk and water quality, and could affect provision of water resources. The LFRMS needs to be assessed to determine compliance with the objectives of the WFD.
Soils and geology		The LFRMS is not likely to have a significant effect on soils and geology in the Borough due to the localised nature of any potential impacts and the highly urban nature of the area.	
Historic environment	Changes to flood risk could have positive and negative impacts on historic sites including scheduled monuments and listed buildings. This includes damage to the fabric of the structures through waterlogging or drought and impacts on their historic value.		There are a large number of historic sites in the Borough that could be affected by changes to flooding and flood risk management measures. Opportunities may exist to protect important sites or negative impacts could occur due to increased flood risk to vulnerable sites.
Population	Flood risk can influence a range of socio-economic characteristics of the Borough including social deprivation levels, health and wellbeing, access and recreation, and employment opportunities.		The LFRMS has the potential to provide significant positive benefits to the population of the Borough.
Material assets	Critical infrastructure including the transport network, waste sites, utilities services and emergency services, could benefit from reduced flood risk. Conversely, increased flood risk to these sites could cause significant disruption to the Borough, impacting on human and economic activity and the environment.		Material assets could benefit from reduced flood risk, but the Borough could be significantly affected by increased flood risk to these assets.
Air quality		The LFRMS is not likely to have a significant effect on air quality in the Borough due to the localised nature of any potential impacts.	
Climate	Changes in flood risk could affect resilience to the potential impacts of future climate change. This could have knock-on effects on a range of environmental aspects including biodiversity, water resources and the local landscape. Flood risk management measures could also result in increased carbon emissions associated with new development or increased management activities.		The LFRMS may include mitigation, resilience and adaption responses and measures that could contribute to addressing the future impacts of climate change effects. Opportunities to improve climate change adaptation will be considered in the SEA.

4.12 Habitats Regulations Assessment

A Test of Likely Significant Effect (screening assessment) has been undertaken in accordance with the requirements of the Habitats Regulations to determine whether the LFRMS is likely to adversely affect the integrity of a European site (alone or in combination).

Greenwich does not support any European sites (SACs, SPAs and Ramsar sites). There, are 10 European sites within approximately 30km of the Borough boundary. These are:

- Lee Valley SPA
- Lee Valley SPA Ramsar
- Thames Estuary and Marshes SPA
- Thames Estuary and Marshes Ramsar
- South West London Waterbodies SPA
- South West London Waterbodies Ramsar
- Richmond Park SAC
- Wimbledon Common SAC
- Epping Forest SAC
- North Downs Woodlands SAC

The Lee Valley SPA and Ramsar sites are located 9km to the north of the boundary, to the north of the City of London and the River Thames. Epping Forest SAC is also located 9km to the north of the Borough.

None of the European sites is hydrologically linked to Greenwich and the majority are located to the north of the Borough, which is separated from these sites by central London and the River Thames.

The TLSE concluded that it is not likely that any of these designated sites would be adversely impacted by flood risk management activities undertaken in the Borough and as such, no further assessment is required under the Habitats Regulations. Further details of this assessment are provided in the TLSE screening appraisal included in Appendix B of this report.

5 SEA framework

5.1 Introduction

The SEA framework is used to identify and evaluate the potential environmental issues associated with the implementation of the LFRMS. The framework comprises a set of SEA objectives that have been developed to reflect the key environmental issues identified through the baseline information review. These objectives are supported by a series of indicators, which are used as a means to measure the potential significance of the environmental issues and can also be used to monitor implementation of the LFRMS objectives. These LFRMS objectives are tested against the SEA framework to identify whether each option will support or inhibit achievement of each objective. Table 7 below summarises the purpose and requirements of the SEA objectives, indicators and targets.

Table 7: Definition of SEA objectives, indicators and targets

	Purpose
Objective	Provide a benchmark 'intention' against which environmental effects of the plan can be tested. They need to be fit-for-purpose.
Indicator	Provide a means of measuring the progress towards achieving the environmental objectives over time. They need to be measurable and relevant and ideally rely on existing monitoring networks.

5.2 SEA objectives and indicators

SEA objectives and indicators have been compiled for each of the environmental receptors (or groups of environmental receptors) scoped into the study during this phase of the project (see Table 6). The draft SEA objectives for the LFRMS are given in Table 8 below. These objectives are currently in draft form and can be refined or revised in response to comments received during the consultation phase on this SEA Scoping Report and in light of any additional information obtained during the life of the project.

Table 8: SEA objectives and indicators

Receptor	Objective		Indicator
Landscape	1	Protect the integrity of the Borough's urban and rural landscapes, and do not cause an adverse impact on the Borough's important views and landmarks.	Changes in the condition and extent of existing characteristic elements of the landscape. The condition and quality of new characteristics introduced to the environment. Number of historic sites at risk of flooding.
Biodiversity, flora and fauna	2	Protect and enhance important and notable habitats and species in the Borough.	Area of designated site adversely affected by flooding. Monitoring of reported status of designated sites. No net loss of land designated as nature conservation sites Area of habitat created as a result of implementation of the LFRMS (e.g. flood storage areas creating wetland habitat). Number of barriers to migration removed.
	3	Maintain and enhance habitat connectivity and wildlife corridors within the Borough.	
	4	Maintain existing, and where possible create new, riverine habitat to benefit aquatic species and fisheries, and maintain upstream access.	
Water environment	5	Improve the quality and quantity of the water in the rivers.	River quality monitoring assessments. Reported pollution incidents. Number of sites with SuDS schemes installed. Number and volume of Environment Agency licensed abstractions. Numbers of sites with high pollution potential (e.g. landfill sites, waste water treatment works) at risk from flooding.
	6	Do not inhibit achievement of the WFD objectives and contribute to their achievement where possible.	Percentage of river lengths achieving 'Good' ecological status or an improvement on existing status. Assessment of FRM options and their impact (e.g. disconnection/ reconnection with floodplain, in-channel works/dredging, barriers to fish movement, reinstatement/ removal of natural morphology).

Receptor	Objective		Indicator
Historic environment	7	Preserve and where possible enhance important historic and cultural sites in the Borough.	Number of historic sites at risk from flooding.
Population	8	Minimise the risk of flooding to communities.	Number of residential properties at risk of flooding. Number of key services (e.g. hospitals, health centres, residential/care homes, schools etc) at risk from flooding.
	9	Increase the use of sustainable drainage systems (SuDS), particularly in all new developments.	Number of sites with SuDS schemes installed.
Material assets	10	Minimise the impacts of flooding to the Borough's transport network.	Length of road and rail infrastructure at risk from flooding. Number of key infrastructure assets (e.g. power stations, sub-stations) at risk from flooding.
Climate	11	Reduce vulnerability to climate change impacts and promote measures to enable adaptation to climate change impacts.	Number of residential properties at risk of flooding. Number of key services (e.g. hospitals, health centres, residential/care homes, schools etc) at risk from flooding. Area of habitat created as a result of implementation of the LFRMS (e.g. flood storage areas creating wetland habitat). Number of barriers to migration removed.

5.3 Impact significance

The unmitigated impacts of the LFRMS objectives on achieving the SEA objectives will be identified through the analysis of the baseline environmental conditions and use of professional judgement. The significance of effects will be scored using the five point scale summarised in Table 9. If there is high uncertainty regarding the likelihood and potential significance of an impact (either positive or negative), it will be scored as uncertain.

Table 9: Impact significance key

Impact significance	Impact symbol
Significant positive impact	++
Minor positive impact	+
Neutral impact	O
Minor negative impact	-
Significant negative impact	--
Uncertain impact	?

5.4 SEA assessment approach

5.4.1 Developing alternatives

The SEA Directive requires an assessment of the plan and its 'reasonable alternatives'. In order to assess reasonable alternatives, different strategy options for delivering the LFRMS will be developed and assessed at a strategic level against the above SEA objectives and environmental baseline as detailed in Section 4. The results of this assessment will be used to inform the decision making process in choosing a preferred way of delivering the LFRMS.

The LFRMS objectives and measures (in SEA terms called ‘alternative options’) are not yet sufficiently developed to detail in this scoping report. However, they will be assessed at a later stage, with details of each provided in the Environmental Report.

The SEA will also consider a 'do nothing' scenario (i.e., how the situation would develop in relation to each environmental receptor without implementation of the LFRMS).

5.4.2 Assessment approach

The LFRMS measures will be evaluated in light of their potential cumulative, synergistic and indirect environmental effects on the different SEA receptors selected for further assessment (see Table 6). The assessment of these environmental effects will be informed by the baseline data collected at this scoping stage, professional judgement and experience with

other flood risk related SEAs, as well as an assessment of national, regional and local trends. In some cases, the assessment will draw upon mapping data and GIS to identify areas of potential pressure, for example due to flood risk or presence of environmental designations.

Throughout the assessment the following will apply:

- Positive, neutral and negative impacts will be assessed, with uncertain impacts highlighted.
- The duration of the impact will be considered over the short, medium and long term.
- The reversibility and permanence of the impact will be assessed (e.g. temporary construction impacts, impacts which can be mitigated against/restored over time or completely irreversible changes to the environment).
- In-combination effects will also be considered.

The significance of effects upon each of the SEA objectives will then be evaluated and used to inform option selection.

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6 Next steps in the SEA process

6.1 Consultation

A key aspect of the SEA process is consultation (See Table 1 stage A5), which is also a requirement under Article 10 (1) and (2) of the Floods Directive. The SEA process provides a mechanism to ensure that stakeholder engagement requirements are achieved by providing interested parties/organisations and the public an opportunity to inform the process and comment on decisions taken. Stakeholder engagement also ensures that environmental and social issues, constraints and opportunities are identified and assessed at an early stage of the project. The Scoping Report will be subject to a five week consultation period, after which the comments received will be taken into account in the Environmental Report. The Environmental Report will be the next output in the SEA process and it will document the assessment of the LFRMS against the SEA objectives.

6.2 The Environmental Report

Following the consultation period on the SEA Scoping Report, the LFRMS will be developed, concurrently with the SEA, following the framework outlined above. The results of this will be summarised in an Environmental Report. A proposed structure for the Environmental Report is outlined below.

Table 10: Proposed Structure of the Environmental Report

Section	Information to be included
Non-technical summary	• Non-technical summary of the SEA process
Methodology	• Who carried out the SEA, how, who was consulted, and when • Difficulties in collecting data or assessment
Background	• Purpose of the SEA and integration with LFRMS objectives
Environmental baseline	• Baseline environmental data, including the future baseline without the plan. This will be updated from the Scoping Stage with information brought to light during the consultation period. • Links to other plans, programmes and relevant environmental protection objectives, and how they have been incorporated • Existing and foreseeable future environmental problems • Limitations of the data, assumptions etc
SEA objectives, baseline and context	• SEA objectives and indicators
Plan issues and alternatives	• Description of significant environmental effects of the strategies • Assessment matrix for each strategy/alternative • How environmental problems were considered in developing the strategies and choosing the preferred alternatives • Other alternatives considered, and why these were rejected • Proposed mitigation and enhancement measures to deliver objectives
Implementation	• Links to project environmental impact assessment, design guidance etc. • Proposals for monitoring and reporting

A Appendix A: Review of policies, plans and programmes

Plan/Policy/Programme	Overview	Relevance to LFRMS	Conflict with LFRMS	Primary SEA topic
International				
EU Sustainable Development Strategy (revised 2006)	Outlines the need for economic growth to support social progress and respect the environment to achieve sustainable development.	The strategy aims to limit climate change and manage natural resources more responsibly, issues which are directly relevant to flood risk. Provides direction for the LFRMS in the managing of natural resources for flood risk	The LFRMS should seek to promote objectives that deliver sustainable flood risk management and sustainable development.	• Biodiversity, flora and fauna • Water environment
European Biodiversity Strategy to 2020	Outlines strategy to halt the loss of biodiversity and ecosystem services in the EU by 2020.	Aims include the provision of better protection for ecosystems and fish stocks, promotion of green infrastructure and tighter controls on invasive alien species.	The LFRMS may contribute to the aims of the strategy through the provision of new green infrastructure to manage flood risk. In contrast, the strategy may limit certain flood risk management objectives if they are shown to be likely to adversely affect biodiversity or ecosystem services.	• Biodiversity, flora and fauna
EC Birds Directive – Council Directive 2009/147/EEC on the conservation of wild birds	Provides for protection of all naturally occurring wild bird species and their habitats, with particular protection of rare species.	Designates Special Protection Areas (SPAs) to protect birds and their habitats. The LFRMS objectives should avoid any significant adverse effect on these sites and supporting features. Requires LFRMS to be assessed for potential impact.	May restrict certain flood risk management objectives if they are shown to be likely to have a significant effect on a SPA.	• Biodiversity, flora and fauna
EU Floods Directive – Directive 2007/60/EC on the assessment and management of flood risks	Aims to reduce and manage the risk of flooding and associated impacts on the environment, human health, heritage and economy. Principle requirement is the preparation of flood risk management plans at River Basin District level, together with preliminary flood risk assessments and hazard/risk maps.	Provides strategic direction to reduce impacts of flooding and promote enhanced flood risk management. The LFRMS will need to demonstrate compliance with the requirements of the Directive.	None likely as the LFRMS will seek to contribute to achieving the Directive.	• Water environment • Climate
EU Groundwater Directive – Directive 2006/118/EC on the protection of groundwater against pollution and deterioration	Establishes a regime that sets underground water quality standards and introduces measures to prevent or limit inputs of pollutants into groundwater. Implemented in the UK through the Environmental Permitting Regulations (2010).	Water quality is relevant to the LFRM as flooding is linked to water pollution and a reduction in surface water and groundwater quality.	Improved flood risk management may benefit groundwater quality by reducing the risk of water pollution during a flood event. LFRMS objectives would need to consider potential impacts on groundwater and may be restricted if they contribute to an adverse impact.	• Water environment
EC Habitats Directive – Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Principle aim is to promote the maintenance of biodiversity by requiring Member States to take measures to restore habitats and species to favourable conservation status. Introduces robust protection for habitats and species of European importance. Enables the creation of Special Areas of Conservation (SACs) in order to establish a coherent ecological network of protected sites. Encourages protection and management of flora and fauna and supporting landscapes through planning and development policies.	Designates SACs to protect and promote biodiversity. The LFRMS objectives should avoid any significant adverse effect on these sites and supporting features. Requires LFRMS to be assessed for potential impact.	May restrict certain flood risk management objectives if they are shown to be likely to have a significant effect on a SAC.	• Biodiversity, flora and fauna

Plan/Policy/Programme	Overview	Relevance to LFRMS	Conflict with LFRMS	Primary SEA topic
Urban Wastewater Treatment Directive – Directive 91/271/EEC concerning urban waste water treatment	Aims to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors.	Defines requirements for the collection and treatment of waste water in line with the population equivalent. LFRMS would need to consider potential impact of flood risk management objectives on water treatment sites.	The LFRMS could support the aims of the Directive by reducing the risk of flooding to water treatment sites. However, LFRMS objectives may be restricted if they are shown to be likely to effect on wastewater discharges during flood events.	• Water environment
EU Water Framework Directive – Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy	Establishes framework for protection of inland surface waters, transitional waters, coastal waters and groundwater to prevent pollution, promote sustainable water use, protect the aquatic environment, improve the status of aquatic ecosystems and mitigate the effects of floods and droughts.	Member states must prepare River Basin Management Plans and programme of measures for each River Basin District that sets out a timetable approach to achieving the WFD objectives. Places requirements on all relevant authorities to ensure their actions do not contravene the objectives of the Directive.	May restrict certain flood risk management options if likely to inhibit achievement of WFD objectives and detailed programme of measures. Flood risk management options may be strengthened if they actively contribute to meeting the WFD requirements.	• Biodiversity, flora and fauna • Water environment
National				
Securing the Future – the UK Government Sustainable Development Strategy (2005)	Establishes a broad set of actions and priorities to support the achievement of sustainable development. It includes measures to enable and encourage behaviour change, measures to engage people, and ways in which the Government can promote sustainability.	Includes high level aims to promote sustainable development and sets out how local authorities can contribute to delivering this and the improvement of the local environment.	The LFRMS can contribute to sustainable development through the promotion of better flood risk management to benefit people, the economy and the environment.	• Population • Material assets
Flood and Water Management Act (2010)	Designates Lead Local Flood Authorities (LLFAs) who *'must develop, maintain, apply and monitor a strategy for flood risk management in its area'*. Applies to ordinary watercourses, surface runoff and groundwater.	Provides key driver for production of LFRMS and sets strategic direction.	None	• Water environment • Climate
Flood Risk Regulations (2009)	Implements the requirements of the EU Floods Directive, which aims to manage the risk of flooding and associated socio-economic and environmental impacts. Requires LLFAs to manage flooding from surface runoff.	Key driver for implementing flood risk management strategies at the local level.	None	• Water environment • Climate
Water for People and the Environment, Water Resources Strategy for England and Wales (2009)	Sets out the approach to sustainable water resources management throughout England and Wales to 2050 and beyond to ensure that there will be sufficient water for people and the environment.	Flood risk management measures are linked to wider water resources management issues and both aspects can actively contribute to achieving corresponding objectives.	None	• Water environment • Population • Climate
Future Water, The Government's water strategy for England (2008)	Future Water defines future objectives for the water sector by 2030 and implementation steps on achieving the objectives. It includes objectives to reduce flood risk from rivers and the coast; improve the sustainable delivery of water supplies; improve the quality of the water environment through greater protection; and more effective management of surface water , which includes the promotion of SuDS, water reuse and above-ground storage;	The strategy includes provisions that seek to better manage surface water drainage and reduce flood risk, and the LFRMS could actively contribute to achieving these objectives.	The strategy promotes greater protection of the water environment, reduced water pollution and enhanced ecological quality of watercourses. The strategy may restrict certain flood risk management options if they are likely to inhibit achievement of these wider environmental objectives.	• Water environment

Plan/Policy/Programme	Overview	Relevance to LFRMS	Conflict with LFRMS	Primary SEA topic
Making Space for Water – taking forward a new Government strategy for flood and coastal erosion risk management in England (2005)	Aims to provide strategic direction to deliver sufficient space for water and enable more effective management of coastal erosion and flooding to benefit both people and the economy. The aim being to address these issues to mitigate their impact and to achieve environmental and social benefits.	National guidance regarding flood risk management is directly relevant to the LFRMS. The LFRMS can contribute to its aims, including promoting greater land management and land use planning, and integrated urban drainage management.	None	• Water environment • Population • Climate
The National Flood and Coastal Erosion Risk Management Strategy for England (2011)	Provides strategic direction to manage and monitor flood and coastal erosion risks in England. It sets out responsibilities of different organisations including local authorities to reduce risks and sets out the requirements for LLFAs to develop LFRMS.	Key driver for implementing flood risk management strategies at the local level.	None	• Water environment • Population • Climate
Water Act (2003)	Sets out the framework for abstraction licensing, impoundments, water quality standards and pollution control measures, and includes measures for drought management and flood defence work in England and Wales.	Flood risk management is one of the themes addressed by the LFRMS.	The strategy promotes greater protection of water resources and may restrict LFRMS objectives if they are likely to adversely affect water quality or sustainable resource management.	• Water environment
Draft Water Bill (2012)	Emerging national strategy aimed at improved regulation of the water industry, whilst increasing its resilience to natural hazards such as drought and floods. It includes provisions to better manage sustainable water abstraction and encourage the use of SuDS.	Aims to promote better management of water resources and reduce the risks of flooding.	The strategy promotes greater protection of water resources and may restrict LFRMS objectives if they are likely to adversely affect water quality or sustainable resource management.	• Water environment
The National Flood Emergency Framework for England (2011)	Sets out a strategic approach to emergency response planning to reduce the impacts of flooding and improve resilience.	The framework sets out organisational responsibilities and promotes a multi-agency approach to managing flooding events.	None	• Water environment
The Carbon Plan (2011)	The carbon plan sets out a vision for Britain powered by cleaner energy used more efficiently, with more secure energy supplies and stable energy prices and benefits from jobs and growth that a low carbon economy will bring. Key areas are electricity generation, eating homes and businesses and travel.	Carbon emissions, and the resulting climate change impacts, are highly relevant to the issue of flood risk management due to the likely increased flood risk resulting from climate change.	None	• Climate change
Building a Low Carbon Economy – the UK's Contribution to Tackling Climate Change (2008)	Puts forward a framework for adapting to climate change and associated threats as well as a case for increased resilience to climate change.	Emphasises the commitment to sustainable development and consideration of the potential impacts of climate change, including increased flooding.	The LFRMS may contribute to the aims of the strategy through the provision of measures to adapt to an increase in flood risk due to future climate change.	• Climate change
Climate Change Act (2008)	Establishes a definite target to reduce UK national carbon emissions by 80% by 2050, relative to a 1990 baseline. Requires the government to publish five yearly carbon budgets starting with the period 2008-2012. Sets targets to reduce greenhouse gases, and puts in place funding and mechanisms to reduce and alter activities which contribute to the emission of these gasses.	Emphasises the commitment to sustainable development.	The LFRMS will need to consider the carbon implications of its objectives and should seek to minimise emissions whilst promoting sustainable flood risk management.	• Climate change

Plan/Policy/Programme	Overview	Relevance to LFRMS	Conflict with LFRMS	Primary SEA topic
Biodiversity 2020: A Strategy for England's Wildlife and Ecosystems (2011)	Sets out the Government's strategy for improving biodiversity in England up to 2020.	Flooding can have adverse impacts on biodiversity. However there may be opportunities for the LFRMS to provide for biodiversity enhancements, as well as reducing risks to habitats and species from flood events.	The strategy could restrict LFRMS objectives if they are shown to have a significant adverse impact on water quality or local biodiversity.	• Biodiversity, flora and fauna • Water environment
England Biodiversity Framework (2008)	The framework encourages a number of conservation aspects including the adoption of an ecosystem approach and to embed climate change adaptation principles in conservation action.	The LFRMS may include measures that would result in biodiversity enhancements across landscapes and restoring / improving habitats.	The strategy could restrict LFRMS objectives if they are shown to have a significant adverse impact on water quality or local biodiversity.	• Biodiversity, flora and fauna • Water environment
UK Biodiversity Action Plan (1994)	The UK BAP aims to maintain and enhance biological diversity within the UK and contribute to the conservation and enhancement of global diversity.	The LFRMS will need to consider the potential impacts of measures within it on important species and habitats that are within the District, including the various Sites of Special Scientific Interest.	The strategy could restrict LFRMS objectives if they are shown to have a significant adverse impact on water quality or local biodiversity.	• Biodiversity, flora and fauna • Water environment
National Wetland Vision (2008)	The Wetland Vision is of a future where wetlands are a significant feature of the landscape in which wildlife can flourish. It will be a future in which wetland heritage is recognised and safeguarded; where everyone can enjoy wetlands for quiet recreation and tranquillity. Vitally, it will be a future where wetlands are valued both for the roles they play in helping us deal with some of the challenges of the 21st century and in improving and sustaining our quality of life.	Preserving and restoring wetlands such as peatlands, rivers and lakes will help regulate surface water run-off, store flood water and recharge groundwaters. These actions that are part of the wetland vision could potentially link with measures within the LFRMS.	May restrict certain flood risk management objectives if they are shown to be likely to have a significant effect on wetland habitats within the Borough.	• Biodiversity, flora and fauna • Water environment
Wildlife and Countryside Act (as amended) (1981)	The Act is the principle mechanism for legislative protect of wildlife in Great Britain. The Act deals with the protection of birds, other animals and plants.	The Act provides for the notification of Sites of Special Scientific Interest and their protection and management. Any potential impacts of the LFRMS, including on SSSIs, will need to be considered through the SEA.	May restrict certain flood risk management objectives if they are shown to be likely to have a significant effect on a SSSI.	• Biodiversity, flora and fauna • Water environment
Natural Environment and Rural Communities (NERC) Act (2006)	Provides guidance for the protection and enhancement of important habitat and species.	Requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England.	May restrict certain flood risk management objectives if they are shown to be likely to have a significant effect on priority species or habitats.	• Biodiversity, flora and fauna • Water environment
Salmon and Freshwater Fisheries Act (1975)	Aims to regulate practice relating to freshwater fisheries and salmon fishing.	The Act's main purpose is to protect fish species. However, it does indirectly affect flood risk. Restricting the obstruction to passage of fish may have implications for flood risk, as this will prohibit the use of fish weirs and mill dams.	May restrict certain flood risk management objectives if they are shown to be likely to have an adverse effect on fish passage or compromise a waterbody from achieving Good status under the WFD.	• Biodiversity, flora and fauna • Water environment
Contaminated Land (England) Regulations (2006)	Sets out provisions relating to the identification and remediation of contaminated land. The regulations identify contaminated land issues and pathways to pollution of surface, ground, estuarine and coastal water environments.	Although there is no heavy industry in the Borough, other light industries may have contaminated the land.	Flooding of contaminated land can have adverse impacts on factors such as biodiversity, water and soils	• Biodiversity, flora and fauna • Water environment

Plan/Policy/Programme	Overview	Relevance to LFRMS	Conflict with LFRMS	Primary SEA topic
				• Soils
Heritage Protection for the 21st Century, White Paper (2007)	Aims to promote the protection of the historic environment through the planning system.	Flooding events may have an adverse impact on historic features in the Borough and the LFRMS may provide an opportunity to deliver benefits through reduced flood risk.	The strategy could restrict LFRMS objectives if they are shown to have a significant adverse effect on heritage sites in the Borough.	• Cultural heritage
National Planning Policy Framework (2012)	The National Planning Policy Framework (NPPF) has replaced the set of national planning policy statements and national planning policy guidance notes, bringing them into one document. It sets high level national economic, environmental and social planning policy and includes a new presumption in favour of sustainable development.	The NPPF has replaced PPS25 along with the other PPSs and PPGs, and so comprises the national policy framework in relation to planning in areas of higher flood risk. The NPPF restricts development that would adversely affect sites European sites, designated sites, including Green Belt, Sites of Special Scientific Interest (SSSIs) and Areas of Outstanding Natural Beauty (AONB), as well as locations at risk of flooding or coastal erosion.	The strategy could restrict LFRMS objectives if they are shown to have a significant adverse effect on sensitive ecological and landscape sites in the Borough.	• Biodiversity, flora and fauna • Water environment • Landscape • Population • Soils
Regional				
Thames Catchment Flood Management Plan (2009)	These CFMPs provide an overview of the flood risk in these catchments and set out the preferred surface water management strategy for future years. They outline the wider context for managing flood risk in London.	The CFMPs provide important context for the LFRMS and set the strategic direction for managing flood risk from main rivers.	None	• Water environment
London Regional Flood Risk Appraisal – Greater London Authority (2009); and City of London Strategic Flood Risk Assessment (2012)	These regional flood risk assessments provide a high level overview of historical and future flood risk from local flood sources in the region.	Takes into consideration significant consequences on human health, economic activity, the environment and cultural heritage.	The LFRMS will need to address these broad topics in a local context.	• Water environment • Population • Cultural heritage
London Plan – Greater London Authority (2013)	The Mayor's London Plan provides an economic, environmental, transport and social framework for development in London.	Forms a basis to local plans within London.	None	• Water environment • Population • Biodiversity, flora and fauna
Thames Estuary 2100 Strategy (2002)	Provides recommendations for flood risk management for London and the Thames estuary.	Provide important context for the LFRMS.	None	• Water environment
Managing Water Resources & Flood Risk in the South East (2005); and East London Boroughs Strategic Flood Risk Assessment	Provides levels of strategic assessment of flood risk across the region.	Provide broad context for the LFRMS.	None	• Water environment

Plan/Policy/Programme	Overview	Relevance to LFRMS	Conflict with LFRMS	Primary SEA topic
London Rivers Action Plan (2009)	A tool to help restore rivers for people and nature. Provides guidance regarding improving the wildlife and amenity value of London rivers. Key aspirations include the improvement of flood management using more natural processes; reducing the likely negative impacts of climate change; reconnecting people to the natural environment through urban regeneration; and enhancing habitats for wildlife.	The watercourses within Greenwich and surface water flooding are a key feature of the LFRMS.	The LFRMS will need to consider these aspirations in a local context and should seek ways	• Water environment • Biodiversity, flora and fauna
Thames River Basin Management Plan	The Thames River Basin Management Plan (RBMP) has been prepared to meet the requirements of the EU Water Framework Directive. It focuses on actions to address the protection, improvement, sustainable use of water and other pressures facing the water environment in the Thames River Basin.	Water quality and quantity is linked to the LFRMS as flooding events can lead to water pollution and changes in water levels.	May restrict certain flood risk management options if likely to inhibit achievement of WFD objectives and detailed programme of measures. Flood risk management options may be strengthened if they actively contribute to meeting the WFD requirements.	• Water environment
Cleaning the Air – Mayors Air Quality Strategy (2010)	Outlines the direction for air quality policy of the City of London through to 2015. It includes details for air quality management and monitoring the effectiveness of policies and measures that are introduced to reduce pollution.	Provides information on regional policies to improve air quality across London.	None	• Air Quality
Draft Climatic Change Adaptation strategy for London (2010)	The strategy aims to increase resilience to the future effects of climate change, sets targets for reducing carbon dioxide emissions in London, and seeks to deliver energy efficiency measures. It aims to make London a Low Carbon City and to achieve a range of associated environmental and social benefits.	Flood risk management actions can contribute to the provision of adaptation measures to benefit people and biodiversity. Flood risk management activities will generate carbon emissions.	The LFRMS will need to demonstrate that it can deliver improved flood risk management measures whilst minimising the level of associated carbon dioxide emissions.	• Climate
Local				
Preliminary Flood Risk Assessment Royal Borough of Greenwich (2011)	Provides levels of strategic assessment of flood risk across the Borough.	The flood risk assessment provides an important local context for the LFRMS.	None	• Water environment
Ravensbourne River Corridor Improvement Plan (2010)	Provides specific guidance for the Ravensbourne corridor that lies within the boundary of the Thames Gateway with focus on areas of planned growth and investment. It sets a future vision for the catchment, provides a description of the landscape character areas it contains and provides strategic design and management guidance to influence future development.	Provides useful information on local schemes within the borough catchment	The LFRMS will need to consider local schemes within the catchment and has the potential to contribute to biodiversity enhancements through new flood risk management activities.	• Water environment • Biodiversity flora and fauns
City of London Infrastructure Delivery Plan (2011)	Plan sets out the requirements for infrastructure in the City and the priorities for delivery. Provides guidance to help partnerships deliver this infrastructure in a timely manner to support development.	Objectives in relation to flood risk and the water environment are included within the plan, which is of relevance to the LFRMS.	None	• Water environment

Plan/Policy/Programme	Overview	Relevance to LFRMS	Conflict with LFRMS	Primary SEA topic
London Borough of Greenwich Local Plan (2012)	Outlines the vision and objectives for the Borough in 2030 and includes strategic and more detailed policies used in determining local planning applications.	Plan is required by the Planning and Compulsory Purchase Act 2004 (amended) and in line with the new National Planning Policy Framework (2012). The Local Plan provides important local context for the LFRMS	The LFRMS will need to consider policies set out in the Local Plan.	• All
Greenwich Biodiversity Action Plan (2013)	Details the priorities for habitats and species and offers practical measures which can be implemented to achieve the conservation of the areas biodiversity heritage. The content of the plan is informed and guided by national targets so that its implementation is firmly linked to national priorities. An additional Habitat Action Plan for Rivers, Riverine Corridors and Associated Habitats has been produced that sets objectives for these particular habitats.	Objectives include the improvement of water quality, removal of barriers to aquatic species and enhancement of wetland and riverine habitats and connectivity and the issue of invasive species.	Objectives of the Greenwich BAP are linked to those of the WFD to enhance biodiversity and improve water quality status.	• Biodiversity flora and fauna
Regeneration Manifesto for Public Space (2009)	Outlines the aim for London boroughs to work with the mayor of London to revitalise public space and improve London's quality of life.	Provides a broad context to aims to increase and enhance open spaces within the Borough. The LFRMS provides an opportunity to contribute to the objectives of the plan.	Protects amenity value of public open spaces.	• Human Health • Socio-economic • Biodiversity flora and fauna

B Appendix B: Habitats Regulations screening assessment

Royal Borough of Greenwich Local Flood Risk Management Strategy (LFRMS)

1 Test of Likely Significance

1.1 Record of Assessment of Likely Significant Effect on a European/International Site (SAC/SPA/Ramsar)

1.1.1 Part A: The Proposal

Type or permission/activity	Local Flood Risk Management Strategy (LFRMS)
Project/File Ref. Number	Royal Borough of Greenwich
National Grid Reference (NGR)	TQ 391780
Brief Description of the project	The LFRMS is a requirement under the Flood and Water Management Act (2010). The Act outlines the responsibility of the lead local flood authority to 'develop, maintain, apply and monitor' a strategy for local flood risk management. It notes that the strategy must identify or outline the following: • The risk management authorities in the area; • The flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area; • The objectives for managing local flood risk (including any objectives included in the authority's flood risk management plan prepared in accordance with the Flood Risk Regulations 2009; • The measures proposed to achieve those objectives; • How and when the measures are expected to be implemented; • The costs and benefits of those measures, and how they are to be paid for; • The assessment of local flood risk for the purpose of the strategy; • How and when the strategy is to be reviewed; and • How the strategy contributes to the achievement of wider environmental objectives.
European Site Name and Status	**Richmond Park Special Area of Conservation (SAC)**
Distance to European/International Site	16km
Site EU Reference Number	UK0030246
Site Centre NGR	TQ199728
List of Site Interest Features	Designated for Annex II species: stag beetle *Lucanus cervus* - site of national importance for the conservation of the fauna of invertebrates associated with the decaying timber of ancient trees.
European Site Name and Status	**Wimbledon Common Special Area of Conservation (SAC)**
Distance to European/International Site	13km
Site EU Reference Number	UK0030301
Site Centre NGR	TQ227719
List of Site Interest Features	Annex I habitats: North Atlantic wet heath with *Erica tetralix*; and European dry heaths Annex II species: stag beetle *Lucanus cervus*
European Site Name and Status	**Epping Forest Special Area of Conservation (SAC)**
Distance to European/International Site	9km
Site EU Reference Number	UK0012720
Site Centre NGR	TQ399959
List of Site Interest Features	Annex I habitats: Atlantic acidophilous beech forests with Ilex and sometimes also taxus in the shrub layer *Quercion robori-petraeae* or *Illici Fagenion*; North Atlantic wet heath with *Erica tetralix*; and European dry heaths. Annex II species: stag beetle *Lucanus cervus*
European Site Name and Status	**Lee Valley Special Protection Area (SPA)**

Distance to European/International Site	9km
Site EU Reference Number	UK9012111
Site Centre NGR	51 34 05 N / 00 02 58 W
List of Site Interest Features	Site supports populations of Bittern *Botaurus stellaris, (*representing at least 6.0% of the wintering population in Great Britain); Gadwall *Anas strepera (*representing at least 1.7% of the wintering Northwestern Europe population) and Shoveler *Anas clypeata (*representing at least 1.9% of the wintering Northwestern/Central Europe population).
European Site Name and Status	**Lee Valley Ramsar**
Distance to European/International Site	9km
Site EU Reference Number	UK11034
Site Centre NGR	51 34 51 N / 00 02 58 W
List of Site Interest Features	Site supports the nationally scarce plant species whorled water-milfoil Myriophyllum verticillatum and the rare or vulnerable invertebrate Micronecta minutissima (a water-boatman). Site supports populations of Northern shoveler *Anas clypeata* (representing an average of 1.9% of the GB population) and Gadwall *Anas strepera* (representing an average of 2.6% of the GB population).
European Site Name and Status	**Thames Estuary and Marshes Special Protection Area (SPA)**
Distance to European/International Site	20km
Site EU Reference Number	UK9012021
Site Centre NGR	51 29 08 N / 00 35 47 E
List of Site Interest Features	Site supports populations of Avocet *Recurvirostra avosetta*, *(*representing 21.7% of the wintering population in Great Britain); Hen Harrier *Circus cyaneus (*representing 0.9% of the wintering Great Britain population). The site also supports wintering and on passage Ringed Plover *Charadrius hiaticula.*
European Site Name and Status	**Thames Estuary and Marshes Ramsar**
Distance to European/International Site	20km
Site EU Reference Number	UK11069
Site Centre NGR	51 29 08 N / 00 35 47 E
List of Site Interest Features	Site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats. The site also supports more than 20 British Red Data Book invertebrates. Assemblages of (waterfowl) of international importance Ringed plover *Charadrius hiaticula* (representing an average of 1.8% of the GB population), Black-tailed godwit *Limosa limosa islandica* (representing an average of 4.6% of the population), Grey plover *Pluvialis squatarola* (representing an average of 3.1% of the GB population), Red knot *Calidris canutus islandica* (representing an average of 1.6% of the population), Dunlin *Calidris alpina alpina* (representing an average of 1.1% of the population) and Common redshank *Tringa totanus tetanus* (representing an average of 1% of the GB population)
European Site Name and Status	**South West London Waterbodies Special Protection Area (SPA)**
Distance to European/International Site	32km
Site EU Reference Number	UK9012171
Site Centre NGR	51 27 41 N / 00 31 27 W
List of Site Interest Features	Site supports populations of Gadwall *Anas strepera (*representing at least 2.6% of the wintering Northwestern Europe population) and Shoveler *Anas clypeata (*representing at least 2.7% of the wintering Northwestern/Central Europe population).
European Site Name and Status	**South West London Waterbodies Ramsar**
Distance to European/International Site	32km
Site EU Reference Number	UK11065
Site Centre NGR	51 23 59 N / 00 23 26 E
List of Site Interest Features	Site supports populations of Gadwall *Anas strepera (*representing an average of 2.8% of the GB population) and Northern shoveler *Anas clypeata (*representing at least 2.6% of the GB population).

European Site Name and Status	**North Downs Woodlands Special Area of Conservation (SAC)**
Distance to European/International Site	24km
Site EU Reference Number	UK0030225
Site Centre NGR	TQ674629
List of Site Interest Features	Annex I habitats: mature *Asperulo-Fagetum* beech forests; and yew *Taxus baccata* woods of the British Isles. Annex II habitats: semi-natural dry grasslands and scrubland facies on calcareous substrates (important orchid sites).
Is this proposal directly connected with or necessary to the management of the site for nature conservation?	No

1.1.2 Part B: Activities:

Hazards and Effects in reference to the individual elements and consented activities of the project. Describe any hazards or effects with potential to give rise to impacts on the European Site (either alone or in combination with other plans or projects).		
Sensitive Interest Features	**Potential Hazard(s)**	**Potential Exposure to hazard and mechanism of effect/impact if known**
Wetland plant species Thames Estuary and Marshes Ramsar • Site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitats.	None	The sites are located a significant distance from the boundary of the Royal Borough of Greenwich and are not hydrologically linked with the Borough. The LFRMS seeks to implement flood risk management measures in the Borough and does not aim to influence flood risk or flood risk management activities at a wider regional level. Flood risk management activities introduced by the LFRMS will therefore have a local impact and will not extend a significant distance beyond the boundary of the Borough. Therefore, no hazards will arise on the sensitive interest features as a result of implementation of the LFRMS.
Aquatic invertebrate species Lee Valley Ramsar • Whorled water-milfoil *Myriophyllum verticillatum* • *Micronecta minutissima* Thames Estuary and Marshes Ramsar • The site supports more than 20 British Red Data Book invertebrates.	None	The sites are located a significant distance from the boundary of the Royal Borough of Greenwich and are not hydrologically linked with the Borough. The LFRMS seeks to implement flood risk management measures in the Borough and does not aim to influence flood risk or flood risk management activities at a wider regional level. Flood risk management activities introduced by the LFRMS will therefore have a local impact and will not extend a significant distance beyond the boundary of the Borough. Therefore, no hazards will arise on the sensitive interest features as a result of implementation of the LFRMS.
Terrestrial habitats Wimbledon Common Special Area of Conservation (SAC) • North Atlantic wet heath with *Erica tetralix,* • European dry heaths Epping Forest Special Area of Conservation (SAC) • Atlantic acidophilous beech forests with Ilex and sometimes also taxus in the shrub layer *Quercion robori-petraeae* or *Illici Fagenion* • North Atlantic wet heath with *Erica tetralix* • European dry heaths North Downs Woodlands SAC • Mature *Asperulo-Fagetum* beech forests • Yew *Taxus baccata* woods of the British Isles • Semi-natural dry grasslands and	None	The SAC sites are located a significant distance from the boundary of the Royal Borough of Greenwich; are not hydrologically linked with the Borough; and are not designated for wetland /hydrological interest features. The LFRMS seeks to implement flood risk management measures in the Borough and does not aim to influence flood risk or flood risk management activities at a wider regional level. Flood risk management activities introduced by the LFRMS will therefore have a local impact and will not extend a significant distance beyond the boundary of the Borough. Therefore, no hazards will arise on the sensitive interest features as a result of implementation of the LFRMS.

scrubland facies on calcareous substrates (important orchid sites).		
Terrestrial invertebrate species Richmond Park Special Area of Conservation (SAC) • Stag beetle *Lucanus cervus*; • Site of national importance for the conservation of the fauna of invertebrates associated with the decaying timber of ancient trees. Wimbledon Common Special Area of Conservation (SAC) • Stag beetle *Lucanus cervus*. Epping Forest Special Area of Conservation (SAC) • Stag beetle *Lucanus cervus*.	None	The SAC sites are located a significant distance from the boundary of the Royal Borough of Greenwich; are not hydrologically linked with the Borough; and are not designated for wetland /hydrological interest features. The LFRMS seeks to implement flood risk management measures in the Borough and does not aim to influence flood risk or flood risk management activities at a wider regional level. Flood risk management activities introduced by the LFRMS will therefore have a local impact and will not extend a significant distance beyond the boundary of the Borough. Therefore, no hazards will arise on the sensitive interest features as a result of implementation of the LFRMS.
Wintering and migratory bird species Lee Valley Special Area of Protection (SPA) • Bittern *Botaurus stellaris* • Gadwall *Anas strepera* • Shoveler *Anas clypeata* Lee Valley Ramsar • Gadwall *Anas strepera* • Shoveler *Anas clypeata* Thames Estuary and Marshes Special Protection Area (SPA) • Avocet *Recurvirostra avosetta* • Hen Harrier *Circus cyaneus* • Ringed Plover *Charadrius hiaticula* Thames Estuary and Marshes Ramsar • Assemblages of (waterfowl) of international importance • Ringed plover *Charadrius hiaticula* • Black-tailed godwit *Limosa limosa islandica* • Grey plover *Pluvialis squatarola* • Red knot *Calidris canutus islandica* • Dunlin *Calidris alpina alpina* • Common redshank *Tringa totanus tetanus* South West London Waterbodies Special Protection Area (SPA) • Gadwall *Anas strepera* • Shoveler *Anas clypeata* South West London Waterbodies Ramsar • Gadwall *Anas strepera* • Shoveler *Anas clypeata*	None	The sites are located a significant distance from the boundary of the Royal Borough of Greenwich and are not hydrologically linked with the Borough. The LFRMS seeks to implement flood risk management measures in the Borough and does not aim to influence flood risk or flood risk management activities at a wider regional level. Flood risk management activities introduced by the LFRMS will therefore have a local impact and will not extend a significant distance beyond the boundary of the Borough. Therefore, no hazards will arise on the sensitive interest features as a result of implementation of the LFRMS.

1.1.3 Part C: Assessment of Significance

In reference to the site interest features and their conservation objectives, describe any likely direct, indirect or secondary effects from the uncompleted and/or continuing consented activities of the project (either alone or in combination with other plans or projects) likely to give rise to significant effects on the European/Ramsar Site.	**None**
Is the project likely to have a significant effect 'alone'?	**No**

If there is no likely significant effect 'alone', are there other projects or plans that in-combination with the project being assessed could affect the site?	**No**
Is the project likely to have a significant effect 'in-combination'?	**No**
List of agencies consulted (Contact name and telephone/email address)	
NE Consultation response comments: **NE Signature:**	

1.1.4 References

http://jncc.defra.gov.uk

Offices at:

Coleshill
Doncaster
Edinburgh
Haywards Heath
Limerick
Newcastle upon Tyne
Newport
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