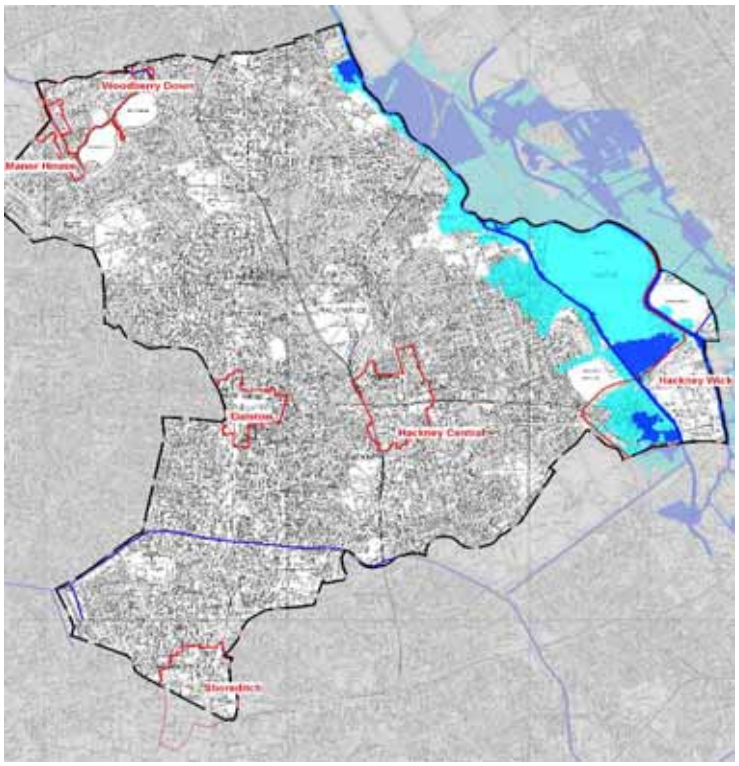
London Borough of Hackney

LB Hackney Core Strategy Proposed Submission: PPS25 Sequential Test

Final Report
July 2009



Revision Schedule

Core Strategy Proposed Submission: PPS25 Sequential Test
July 2009

Rev	Date	Details	Prepared by	Reviewed by	Approved by
03	July 2009	Final	**Sarah Williams** Graduate Hydrologist	**Liz Williams** Principal Consultant	**Jon Robinson** Associate Director
02	June 2009	2nd Draft	**Sarah Williams** Graduate Hydrologist	**Liz Williams** Principal Consultant	
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Table of Contents

1 Introduction

London Borough of Hackney is currently preparing their Core Strategy Proposed Submission Document, which is the main document in their emerging Local Development Framework (LDF). The London Borough (LB) of Hackney Core Strategy Proposed Submission Document (June 2009) presents the spatial vision and strategic objectives for the borough between 2010 and 2025 in tandem with broad guidance on the scale and location of future development and has defined six Growth Areas within Hackney. Following its adoption, the Core Strategy will form the basis for determining planning applications and will direct other Development Plan Documents, including Area Action Plans and Site Allocations.

Throughout its preparation, the LB Hackney Core Strategy Proposed Submission Document (June 2009) should take account of national and regional planning policy to inform the vision and planning policies for Hackney. *Planning Policy Statement 25: Development and Flood Risk* (PPS25, DCLG, 2006) is the Government's national policy relating to flood risk and development. PPS25 requires flood risk to be considered at all stages throughout the planning process. Under PPS25, Local Planning Authorities (LPAs) are required to review flood risk across their region and adopt a sequential approach to planning whereby all development is steered towards areas of lowest flood risk first. This process involves the application of the PPS25 Sequential Test to future land allocations.

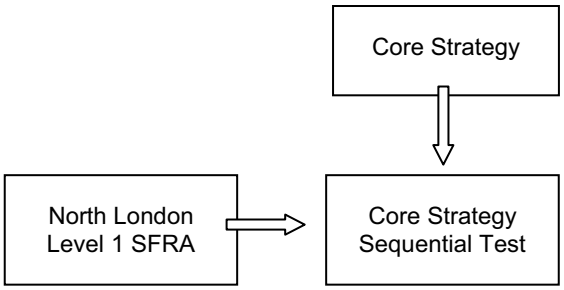
The aim of this document is to apply the Sequential Test to Core Strategy Growth Areas within Hackney to ensure that development is directed towards areas of low flood first.

This document has been structured in the following way:

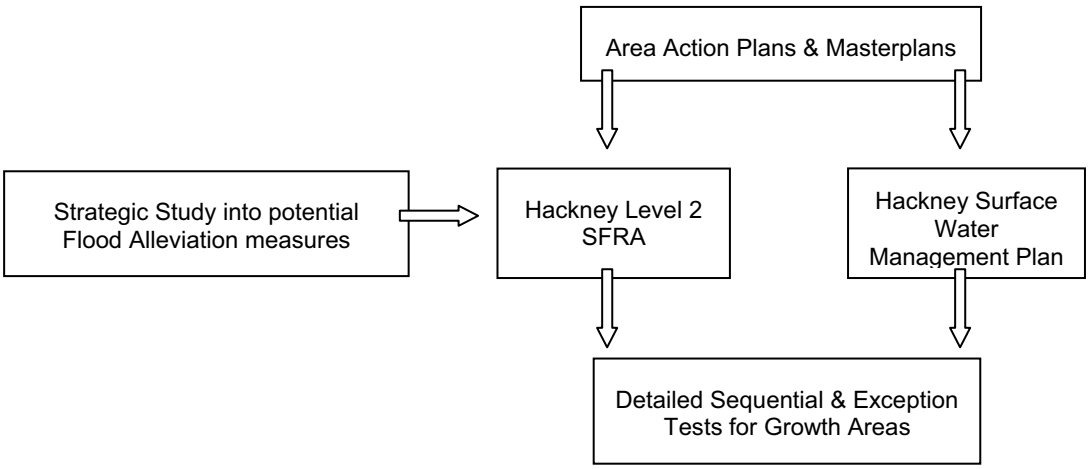
- Identification of sources of flood risk present in Hackney in the light of the existing strategic assessments, primarily the North London Level 1 Strategic Flood Risk Assessment (SFRA);
- Review and collation of national, regional and local policy regarding the regeneration and development options and aims proposed for Hackney;
- Application of the Sequential Test to Growth Areas in Hackney identified in the LB Hackney Core Strategy Proposed Submission Document (June 2009);
- Identification of areas which may require application of the Exception Test;
- Identification of the procedure for applying the Sequential Test to windfall sites;
- Establishing the next steps for assessing the detailed nature of flood risk in Hackney and applying the Sequential Test within the six Growth Areas identified in the LB Hackney Core Strategy Proposed Submission Document (June 2009).

Figure 1-1 Relationship between Hackney's Spatial Planning Documents

Stage One – Core Strategy Sequential Test



Stage Two – Growth Area Sequential & Exception Tests



2 Flood Risk in Hackney

The following chapter provides a review of the flood risk posed to Hackney, drawing on a number of existing strategic documents including the North London Level 1 SFRA (Mouchel 2007). This information will be used to apply the Sequential Test to the Growth Areas in Hackney identified in LB Hackney Core Strategy Proposed Submission Document (June 2009).

2.1 Fluvial Flooding

Sources

The main source of flood risk to Hackney is fluvial flooding associated with the Lower Lee. The River Lee is one of the largest Thames tributaries. It drains a rural catchment of approximately 1415 km^2 which extends to Luton in the north and covers large parts of Hertfordshire and west Essex.

In this area, the Lee catchment is predominantly developed floodplain with built flood defences. The local catchment is influenced by urbanisation and low permeability London Clay geology, which both encourage a rapid response of the catchment to rainfall events. The potential for infiltration into subsoils is low and therefore a large proportion of rainfall is conveyed into the River Lee resulting in a 'flashy' hydrograph profile. This means that there is limited time for flood warning and evacuation procedures unless they are informed through weather forecasting techniques.

Historic Flooding

In 1947 the River Lee experienced considerable flooding and as a result a number of channel alterations and defence measures have been implemented. Several man made channels have provided increased conveyance capacity through the catchment and provided flood relief to the area.

The River Lee Flood Relief channel was constructed in the 1970s and was built to accommodate the 1 in 70-year flood event. As such, this structure no longer provides an adequate level of protection to the surrounding area. Furthermore, the North London Level 1 SFRA (Mouchel 2007) identifies that the level of protection is known to have been reduced further by extensive development in the upper catchment.

There has been no major flooding in this region since 1947; however, the flood relief channel almost reached capacity in 1987, 1993 and 2000, highlighting that the flood risk posed to LB Hackney is a reality.

PPS25 Flood Zones

PPS25 defines four Flood Zones based on the probability of flooding. The Lower Lee has been extensively modelled and there is a high level of confidence associated with the mapped Flood Zones for this area which are provided by the Environment Agency.

Hackney Wick Flood Risk Considerations

A SFRA was commissioned by the London Development Authority (LDA) to support regeneration of the Lower Lea Valley and notably the development associated with the 2012 Olympic Games and its supporting infrastructure.

As part of this assessment, the LDA commissioned hydrodynamic modelling of the fluvial flood risk and breach assessments associated with the River Lee. This modelling provides further information on fluvial flood risk posed to Hackney, particularly in Hackney Wick.

A 2D hydrodynamic TUFLOW model of the River Lee was used to simulate the following three scenarios:

- 1 in 100 year fluvial + 1 in 20 year tidal flood event
- 1 in 100 year fluvial + 1 in 20 year tidal flood event plus climate change
- 1 in 1000 year fluvial + 1 in 20 year tidal flood event

For each scenario, the outputs of the TUFLOW model include values for maximum water depth and the corresponding velocity (i.e. the velocity at the time at which the maximum depth occurs).

The flood extent during the present day 1 in 100 year fluvial + 1 in 20 year tidal event is minimal and covers a small area in Hackney Wick. Maximum flood depths are approximately 0.2m to 0.5m in this area.

Climate change has a notable influence on flood depths and extent in Hackney Wick. During the 1 in 100 year fluvial + 1 in 20 year tidal plus climate change event, maximum flood depths of approximately 1m are experienced across a large portion of Hackney Wick. During the 1 in 1000 year fluvial + 1 in 20 year tidal event, depths increase to 1.5m of floodwater in parts of Hackney Wick, and over 1m in low lying regions near Lea Bridge and east of Clapton Park adjacent to the River Lee.

Such depths of floodwater will govern the type, location, layout and design of future development in parts of east Hackney, and particularly within the Hackney Wick AAP. Flood depth information will also be necessary to determine safe access/egress routes from new developments.

2.2 Tidal

The North London Level 1 SFRA notes that whilst the main source of flood risk facing Hackney is fluvial, there is a tidal influence on this watercourse. The tidal reach of the River Thames extends up the Lower Lea Valley to the Lee Bridge sluices. It is possible that the part of the River Lee within Hackney may be influenced by tidal processes and therefore extreme tidal events in the Thames could result in flooding in Hackney.

The Thames Barrier currently provides protection in excess of the 0.1% annual probability event. The presence of this defence, coupled with local defences means that any extreme tide level would have to be accompanied by a breach in flood defences to result in severe flooding. Localised flooding may occur where surface water outfalls become tide-locked and lead to short term ponding behind defences.

An allowance for the tidal influence on the River Lee has been included within the hydrodynamic modelling undertaken for the River Lee, as described above.

2.3 Surface Water

Overland flow / surface water flooding typically arise because of intense rainfall, often of short duration, that is unable to soak into the ground or enter drainage systems. It can run quickly off land and result in localised flooding. As the majority of the study area is heavily developed, overland flow typically tends to occur when surface water cannot enter overloaded drainage systems during significant rainfall events. This problem is exacerbated by areas of steep, impermeable topography which can generate significant volumes of run-off during heavy rainfall events.

As part of the North London SFRA, Transport for London (TFL) provided records of flood incidents occurring from July 2006 to August 2007. There is a concentration of 6 events around Wick Road; this area is located within a depression and is prone to surface water flooding.

It is recommended that surface water flooding is assessed in greater detail in Hackney through the preparation of a Surface Water Management Plan (SWMP) for the borough.

A SWMP is a 'framework through which key local partners with responsibility for surface water and drainage in their area work together to understand the causes of surface water flooding and agree the most cost effective way of managing surface water flooding' (Defra, 2009).

This information can then be used when carrying out the detailed Sequential Tests for each Growth Area.

Should timescales allow, this process could be carried out in conjunction with the multi-agency project 'Drain London' which seeks to assess the location, frequency, severity and causes of surface water flooding in London and identify and prioritise responses at a strategic scale.

2.4 Groundwater Flooding

Groundwater flooding usually occurs in low lying areas underlain by permeable rock and aquifers that allow groundwater to rise to the surface through the permeable subsoil following long periods of wet weather.

Low lying areas may be more susceptible to groundwater flooding because the water table is usually at a much shallower depth and groundwater paths tend to travel from high to low ground.

North London is almost entirely underlain by London Clay, which is underlain by a significant chalk aquifer. The thickness of the London Clay varies from 100m to 10m in the Lea Valley. The Lea Valley geology comprises gravels and silts deposited by the river covering a layer of London Clay. The Lea Valley is the lowest lying area within North London and is therefore susceptible to groundwater flooding.

Information presented in the groundwater risk map included in the SFRA identifies Stamford Hill at risk of groundwater flooding. A handful of groundwater flooding incidents are recorded in the North London Level 1 SFRA, the majority of which are in the north of the borough.

The North London Level 1 SFRA notes that the groundwater flood risk is relatively low compared with other sources of flooding and can be adequately mitigated on a site basis. These considerations should be addressed as part of site specific FRAs.

2.5 Sewer Flooding

Records of sewer flooding were obtained for the North London Level 1 SFRA from Thames Water through a query of their DG5 registers between August 1997 and August 2007. In order to fulfil statutory commitments set by the Water Services Regulation Authority (OFWAT), water companies must maintain verifiable records of sewer flooding, which is achieved through their DG5 registers. Water companies are required to record flooding arising from public foul, combined or surface water sewers and identify where properties suffered internal or external flooding.

The data provided by the water companies is limited to postcode data, resulting in the coverage of relatively large areas by comparatively limited and isolated recorded flood events. The data also only covers the last ten years of record.

In addition, the records of flooding do not account for the affect of any capital works designed to alleviate flooding. In areas exposed to frequent flooding from overloaded sewers, water companies will typically undertake alleviation works to reduce the severity and/or frequency of the flood events.

The sewer flooding data identified 47 properties that had experienced sewer flooding. 44 of these events were confined to the Stamford Hill in the north part of the borough, and 3 to Shoreditch in south Hackney.

The Thames Water flooding records highlight Stamford Hill as a hotspot for sewer flooding events located south of the Seven Sisters Road.

Through the preparation of a SWMP for Hackney, it will be possible to identify areas where there is pressure on the existing drainage system. Options can then be explored for effective mitigation and management of this form of flooding.

2.6 Artificial Sources

New River

New River is a water supply aqueduct which was constructed in 1613 to supply drinking water to London from Hertfordshire. It is located parallel to the path of the River Lee and leads to storage reservoirs in Stoke Newington in northwest Hackney. The water level in this watercourse is regulated by sluice gates to meet the requirements of the pumping stations and reservoirs.

Sections of the New River are elevated above ground level and therefore a failure of the embankment at these locations could lead to a significant discharge of flow. The flood risk associated with these sections of the New River is yet to be assessed due to unavailable information (Mouchel, 2007).

Regents Canal

Regents Canal was constructed in 1820 to form the London branch of the Grand Union Canal. It extends from Limehouse basin in Docklands to Paddington and passes through the Hackney study area between Shoreditch and Dalston. The RFRA suggests that the canals pose a low flood risk to the surrounding area.

Stoke Newington East and West Reservoirs

Table 5-2 Reservoirs in LB Hackney

Reservoir	Undertaker	Category	Capacity (m^3)
Stoke Newington (East)	Thames Water Ltd	Non-impounding	182000
Stoke Newington (West)	LB Hackney	Non-impounding	227000

Impounding reservoirs are those constructed by damming a watercourse to intercept flows. This form of reservoir poses the greatest flood risk to the surrounding area in the event of dam failure or an uncontrolled release of water from the reservoir. Both reservoirs are pumped storage reservoirs, which are classified as non-impounding. The flood risk associated with these waterbodies is low.

The Level 1 SFRA prepared for North London highlights that the Stoke Newington East and West reservoirs will undergo assessment in specific reservoir management plans.

2.7 Summary

The key sources of flood risk in Hackney are fluvial flooding associated with the River Lee, with a tidal influence from the River Thames, and surface water flooding resulting from heavy rainfall and overloading of the surface water sewer system.

It is recommended that Surface Water Management Plans and more detailed fluvial flood risk mapping as part of a Level 2 SFRA should be used when applying the Sequential Test within individual Growth Areas in Hackney.

3 Core Strategy Growth Areas

3.1 Hackney Study Area

Hackney covers an area of 19 km^2 and has an approximate population of 208,000. It occupies a key location immediately northeast of the City of London. It is right at the heart of major development corridors running east and north, which offer significant opportunities for growth in the area. Nearly one third of the Olympic Park is located within the borough along with supporting infrastructure.

Dalston has been identified as the Major Centre in Hackney. The District Town Centres are Hackney Central, Stoke Newington and Finsbury Park. Hackney Wick in southeast Hackney is part of an industrial area based around a network of canals and watercourses and has been identified as a Preferred Industrial Location within the London Plan (GLA 2008).

The borough has undergone considerable change and development in the recent years and Hackney are keen to see this transformation continue as further areas undergo regeneration. Under the London Plan (GLA 2008), the borough as a whole has been allocated for 10,850 new homes by the year 2016.

3.2 Policy Review

A review has been undertaken of national, regional and local policy relating to Hackney to provide an appreciation of the aims for the borough with respect to future development and regeneration.

National Policies

PPS1 – Delivering Sustainable Development

Hackney will be subject to considerable change and new development and sustainability should be the core principle underpinning all planning. The Government's four main aims for sustainable development are: social progress which recognises the needs of everyone; effective protection of the environment; the prudent use of natural resources; and the maintenance of high and stable levels of economic growth and employment.

Supplement to PPS1 – Planning and Climate Change

This Planning Policy Statement (PPS) sets out how planning, in providing for the new homes, jobs and infrastructure needed by communities, should help shape places with lower carbon emissions and resilient to the climate change now accepted as inevitable.

PPS3 – Housing

A key challenge for Hackney is to explore mixed-use delivery opportunities and identify the potential to accommodate some innovative residential development into mixed-use schemes. Good design is fundamental to the development of high quality new housing, which contributes to the creation of sustainable, mixed communities.

PPS6 – Planning for Town Centres

The Statement advises LPAs to actively promote growth and manage change in town centres; define a network and a hierarchy of centres each performing their appropriate role to meet the needs of their catchments; and adopt a proactive, plan-led approach to planning for town centres, through regional and local planning. Within the Core Strategy Sustainability Appraisal (June 2009) LB Hackney encourage the promotion of growth and development of existing centres whilst enhancing consumer choice; supporting an

efficient, competitive and innovative retail sector; and improving accessibility. In addition, this action will also contribute to improving social inclusion and reducing poverty.

The Growth Areas within Hackney are located around central hubs within the borough which will perform as the Local Centres. In the case of Hackney Wick this will be in the form of a focal point in the area anchored around Hackney Wick Station, and in Hackney Central and Dalston, around the perceived town centres. Woodberry Down is formed around a mixed-use centre along Seven Sisters Road and an area with community focus along Woodberry Grove.

PPS9 – Biodiversity and Geological Conservation

Spatial planning within each Growth Area should ensure that any future development will safeguard biodiversity, or particular interest in this area is networks of natural habitats, the Statement instructs LPAs to maintain networks by avoiding or repairing the fragmentation and isolation of natural habitats through policies in plans. Such networks should be protected from development, and, where possible, strengthened by or integrated within it.

PPS12 – Local Spatial Planning

In order for individual Growth Areas within Hackney to be adopted as AAPs they must be prepared in accordance with statutory procedures set out in PPS 12. There are four AAPs in Hackney; Dalston, Hackney Central, Manor House and Hackney Wick.

PPG13 – Transport

This is of particular importance to several of the Hackney Growth Areas. For example, in Hackney Wick there are currently issues of severance caused by the A12 and the Lea Valley Navigation.

The focus of the Statement is delivery of integrated transport policies. This means integration within and between different types of transport; with policies for the environment; with land use planning; and with policies for education, health and wealth creation. It will be integral to the spatial planning of Growth Areas that local linkages for pedestrians, cyclists and road users are improved and strengthened.

PPG17 – Planning for Open Space, Sport and Recreation

Open spaces underpin people's quality of life. The plans for individual Growth Areas set out proposals for new or improved green grid and open space provision.

PPS22 – Renewable Energy

The statement advises LPAs to develop local development and policies to promote and encourage, rather than restrict, the development of renewable energy resources. The wider environmental and economic benefits of all proposals for renewable energy projects, whatever their scale, are material considerations that should be given significant weight in determining whether proposals should be granted planning permission. New developments within the Masterplan areas should aim to provide renewable energy provision determined by location, scale and design.

PPS23 – Planning and Pollution Control

The Statement advises that any consideration of the quality of land, air or water and potential impacts arising from development, possibly leading to impacts on health, is capable of being a material planning consideration. The planning system plays a key role in determining the location of development, which may give rise to pollution. The controls under the planning and pollution control regimes should complement rather than duplicate each other and the presence of contamination in land can present risks to human health.

PPS25 – Development and Flood Risk

New policy and development should consider the flood risk constraints of the entire site and its environs.

Regional Policies

London Plan (2008)

Table A1.1 – Dalston is identified as a Major Town Centre and is classified as an important cluster of night time economy uses. Hackney Central (Mare Street), Stoke Newington (High Street) and Finsbury Park (jointly with Haringey and Islington) as District Centres also containing important clusters of night time economy uses.

Policy 1.3 - Hackney Wick is contained within a Growth Area. The Mayor will and other partners should engage with relevant agencies beyond London to identify and develop the linkages and capacity of the growth area and to develop timescales and mechanisms for the co-ordination of the three other corridors of importance connecting London and the wider region.

Policy 2A.2 - The Lower Lea Valley is identified as an Opportunity Area within East London. In particular, the physical severance from the A12, railway lines and waterways is identified as needing rejuvenation and improvements, with linkages to key centres. The waterways are recognised as providing a high quality environment attracting modern business facilities.

Policy 2A.7 - Hackney is located within the Areas for Regeneration, and the Mayor will work with strategic partners to achieve their sustained renewal by prioritising them for action and investment. LB Hackney has identified 6 AAPs in their DPDs, Community Strategies, and Neighbourhood Renewal Strategies and set out integrated spatial policies that bring together regeneration, development and transport proposals with improvements in learning and skills, health, safety, access, employment, environment and housing.

Policies 2A.10, 3B.4 - Hackney Wick is identified as a Strategic Industrial Location which may take the form of Industrial Business Parks for businesses requiring a high quality environment or Preferred Industrial Locations for businesses with less demanding requirements. *Table A2.1* lists Hackney Wick as a Preferred Industrial Location.

Table 3A.1 - Sets Hackney a target of 10,850 new homes between 2007/08 to 2016/17 with an annual monitoring target of 1,085 new homes.

Section 3.170 - LB Hackney as a whole, and the Lower Lea Valley, are identified as an emerging cluster of creative industries. Cultural Quarters should be encouraged within identified priority regeneration areas and town centres and mechanisms should be established to promote sustainable property management.

Policy 5C.3 – Bishopsgate / South Shoreditch, known as the City Fringe, has been identified as an Opportunity Area in North East London. Taking account of other policies, developments will be expected to maximise residential and non-residential densities and to contain mixed uses. The City Fringe comprises an area of 489 hectares, with indicative employment capacity of 80,000 from 2001 to 2026 and a minimum target of 5,000 homes is projected for this area (Table 5C.1).

Industrial Capacity SPG (2003)

This document encourages owners and occupiers of industrial land and agencies to manage and invest in capacity to meet the changing needs of different types of industry. In addition it sets out criteria to assist with the management, protection and enhancement of designated strategic industrial opportunities, decline in traditional industry, and the requirement to restructure the industrial land to provide strategic employment opportunities.

LB Hackney Lower Lea Valley AAP (2004)

This document provides a vision for the study area as a key business location for the creation of a wide-ranging employment park and a regeneration opportunity for leisure, residential, retail and office developments. The success of this hinges on the ability to improve permeability of Hackney Wick Fish Island and build on the existing public transport opportunities.

Lower Lea Valley Regeneration Strategy (May 2006)

Thriving centres will have a key focus and continued enhancement. Hackney Wick is a key gateway into the Lower Lea Valley. Transport links include the North London line with good access points to Victoria Park, Hackney Wick and the Olympic Park.

Lower Lea Valley Opportunity Area Planning Framework (2007)

For Hackney, based on strategic assumptions of industrial land release to 2016 there is the potential opportunity to deliver a total of between 350 and 360 new homes (this policy will be revised in the next 12 months).

LLV Regeneration Strategy Strategic Land Use Strategies (2006)

In Hackney Wick, the areas with potential for land use change include; Hackney Wick Station as a new centre or hub of activity for the wider area. Employment activities should reintroduce specialist industrial activity and encourage new and emerging industrial sectors. New mixed use development will be encouraged but must not be detrimental to the industrial capacity of the sub area.

East London Sub-Regional Development Framework (2006)

Identifies the key issues of co-ordinating the Olympic Games with the rest of the Valley to ensure efficient, sustainable regeneration; managing the release of industrial land while ensuring retention of capacity essential for strategic employment/service functions; incorporating the extension of the LVRP (as set out in the Olympic Legacy proposals) and ensure good access from adjacent communities; and securing the potential for high quality residential led mixed development with a strong employment component, which meets local need in terms of size.

Engines for Growth: The vision for the Lower Lea Valley and London Riverside

The Vision is to deliver exemplary sustainable development on a dramatic scale, integrating existing and new communities through excellent design with new infrastructure and new public spaces. This document sets down aims to create a network of compact mixed use, mixed tenure neighbourhoods complete with good public transport, shops, leisure facilities, schools, healthcare and jobs.

Local Policies

London Borough of Hackney Core Strategy Proposed Submission Document (June 2009)

The London Borough of Hackney Core Strategy Proposed Submission Document sets out the long term spatial vision and strategic objectives with respect to future development within Hackney over the next 15 years. The document also presents planning policies with implementation and monitoring details about how the vision and objectives will be delivered. The Core Strategy is the main document in the new Local Development Framework, which will replace the Unitary Development Plan as the borough's local plan.

The main components of the Core Strategy Proposed Submission are as follows:

- The Spatial Portrait and Context
- Vision and Objectives

- Delivering Sustainable Growth
- Supporting Neighbourhoods and Communities
- A Dynamic and Creative Economy
- Providing Better Homes
- Cleaner, Greener and Safer Places
- Climate Change and Environmental Sustainability

The following provides a summary of the Growth Area Policies in the Core Strategy:

'Core Strategy Policy 1: Growth Locations' proposes to direct significant investment, economic and housing growth to the following key locations where existing and programmed infrastructure can best support development:

- Dalston: designated a Major Town Centre with a commercial and retail emphasis;
- Hackney Central: a civic and cultural area, designated a District Town Centre;
- East London Line: improved railway corridor from Shoreditch High Street to Dalston;
- North London Line: improved railway corridor from Hackney Wick to Dalston;
- The City Fringe Shoreditch: one of London's Central Activities Zone;
- Woodberry Down: a new community within a regenerated housing estate and Manor House with improved facilities for the new population;
- Hackney Wick: a neighbourhood of employment led mixed development that maximises Olympic Legacy opportunities.

'Core Strategy Policy 2: Improved Railway Corridors' encourages intensification of residential, employment and commercial, including mixed use opportunities around Shoreditch High Street, Hoxton and Haggerston stations and along Kingsland Road, and improvements to the public realm including walking and cycling routes to the stations.

'Core Strategy Policy 3: City Fringe: Shoreditch' emphasises the need to balance objectives of economic development and protection of the local architectural and historic character within this area.

'Core Strategy Policy 4: Woodberry Down New Community' states the Council's intention to direct investment to create a new sustainable mixed community at Woodberry Down around the regenerated housing estate and to promote Manor House town centre in order to maximise regeneration opportunities in the area. It is noted in the LB Hackney Core Strategy Sustainability Appraisal that Woodberry Down is one of the most significant housing regeneration projects in the UK. It is a product of a National Demonstration Project selected by the Department for Communities and Local Government (CLG), and the Government Office for London (GOL) in January 2007. The Woodberry Down project is well underway and the Consultation Strategy was undertaken in July 2007.

'Policy 5: Hackney Wick New Community' outlines the Council's intention to direct investment and employment led mixed development to Hackney Wick, maximising on the strategic industrial and priority employment designations and Olympic Legacy opportunities. It is emphasized that flood risk will need to be carefully considered in this area, including the development of a strategic flood alleviation scheme to alleviate flood risk in Hackney Wick.

'Policy 6: Transport' encourages patterns and forms of development that reduce the need to travel, particularly by car, and will ensure that development results in the highest standard of environment and facilities for pedestrians and cyclists.

'Policy 7: Working with Infrastructure Partners' states that the Council will work with infrastructure providers to seek service delivery locations in growth areas and town centres, taking consideration of excellent design, sustainable principles of accessibility, environmental performance and social inclusion, and the contribution of infrastructure towards place making through promoting local identity and distinctiveness.

Sustainable Community Strategy, 2008

The Local Development Framework is the spatial expression of LB Hackney's Sustainable Community Strategy (SCS). This document sets out the long term vision and objectives developed by the council and its strategic partners such as health, education and police services. There are six principle objectives of the SCS, which are summarised below:

- Reduce poverty by supporting residents into sustainable employment, and promoting employment opportunities;
- Help residents to become better qualified and raise educational aspirations;
- Promote health and wellbeing for all, and support independent living;
- Make the borough safer, and help people feel safe in Hackney;
- Promote mixed communities in well-designed neighbourhoods, where people can access high quality, affordable housing; and
- Be a sustainable community, where all citizens take pride in and take care of Hackney and its environment, for future generations.

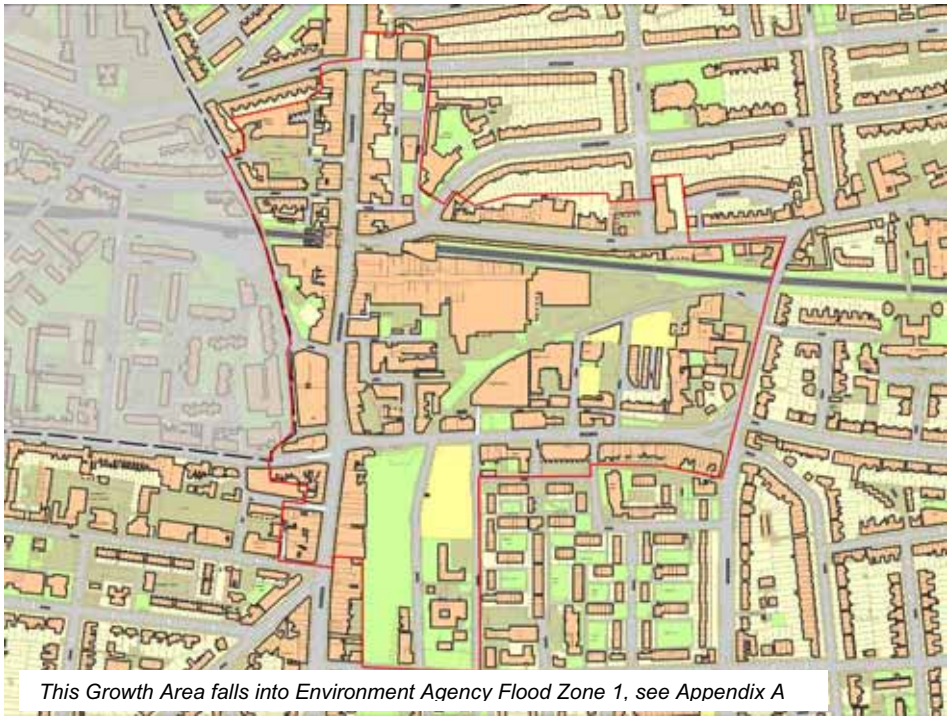
The key message from the Sustainable Community Strategy (2008) is to ensure that town centres in Dalston and Hackney Central and areas of growth in Shoreditch, Woodberry Down and Hackney Wick are vibrant places where local people and visitors choose to shop and spend leisure time and that make sure these centres remain attractive places to do business and invest in.

Core Strategy Growth Areas

The Sequential Test is to be applied to areas within the administrative area of LB Hackney that have been indentified as Growth Areas in the LB Hackney Core Strategy Proposed Submission (June 2009). These are shown in Figure 1.

Flood Zones are identified from Environment Agency Flood Maps and the North London Level 1 Strategic Flood Risk Assessment and are also shown in Figure 1.

Dalston Area Action Plan



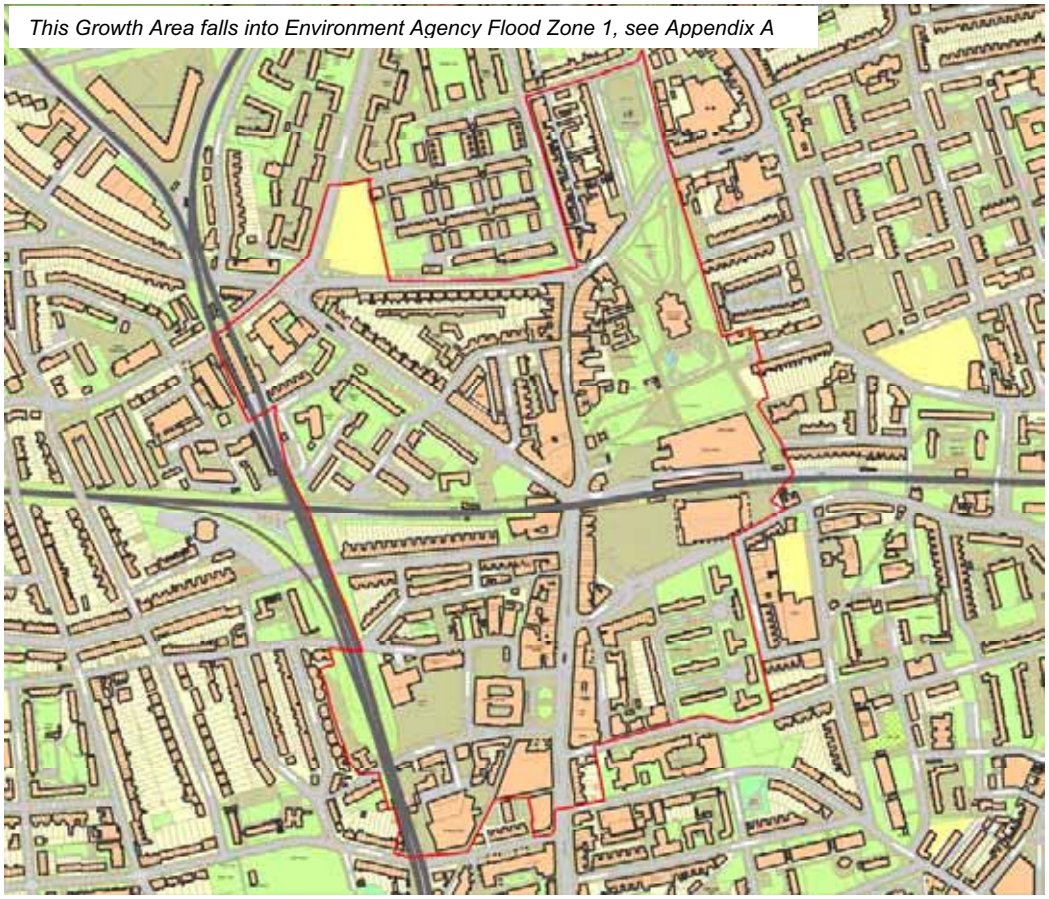
This Growth Area falls into Environment Agency Flood Zone 1, see Appendix A

The **Dalston** AAP comprises 20 hectares on the western edge of LB Hackney. It contains the perceived town centre area of Dalston which is considered an existing hub. Key opportunities identified for Dalston AAP include more and improved shopping facilities, new transport hubs, consolidation of character areas through development of retail themes, enhancement of areas of weak townscape, new and improved public open spaces and pedestrian environment, and the knitting together of different types of urban fabric through new strategic development.

Flood Zone	Existing uses	Proposed Uses	PPS25 Vulnerability Classification
1	Retail Offices Restaurants Leisure Business Transport Infrastructure Residential	Retail Offices Restaurants Leisure Business Transport Infrastructure Residential	Less Vulnerable Less Vulnerable Less Vulnerable Less Vulnerable Less Vulnerable Essential Infrastructure More Vulnerable

Hackney Central Area Action Plan

This Growth Area falls into Environment Agency Flood Zone 1, see Appendix A

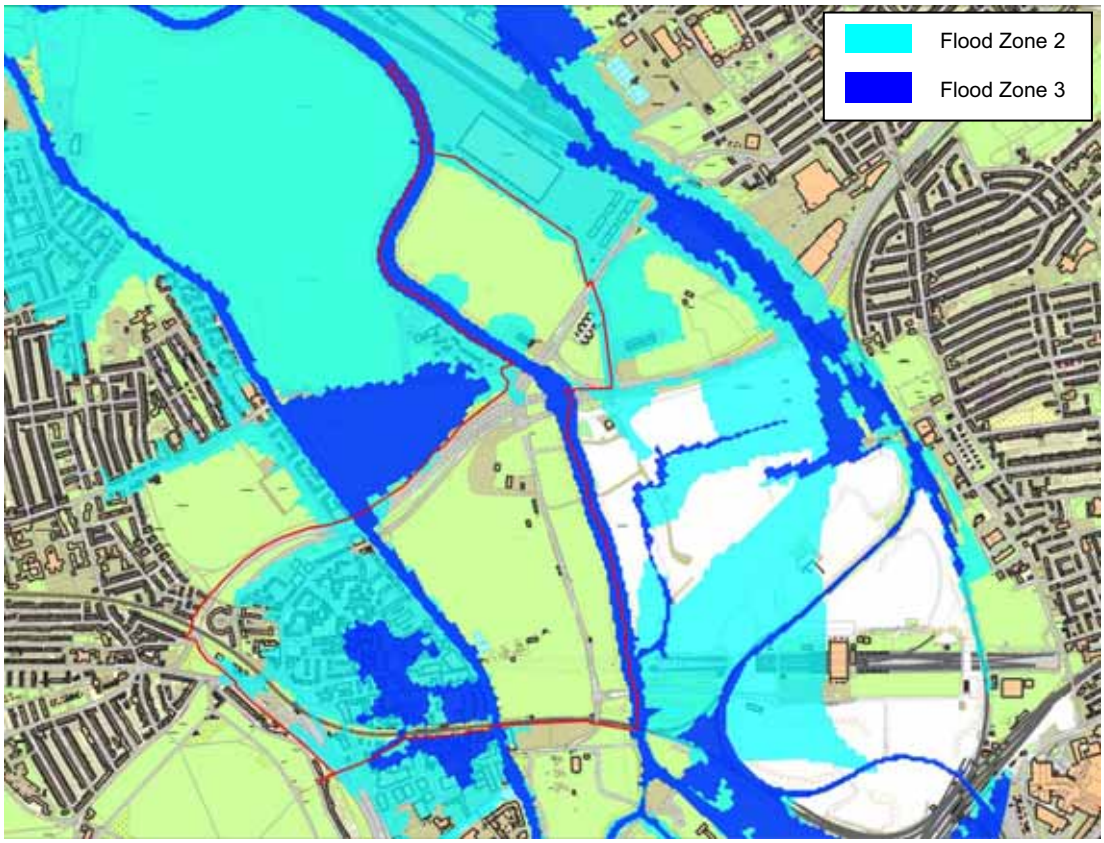


The **Hackney Central** AAP is an area of 36.7 hectares located in the centre of LB Hackney which incorporates the town centre area, the principle shopping length of Mare Street and the Narrow Way, the Town Hall, Amhurst Road and the part of Morning Lane that includes the Tesco site.

The AAP for Hackney Central identifies opportunities for this regeneration area including more improved shopping facilities, enhanced pedestrian streetscape and open spaces, opportunities to improve connections to and enhance existing stations, develop areas of weak townscape character and use the potential for sustainable forms of development. Such regeneration could be achieved through the carefully coordinated development of key opportunity sites within Hackney Central.

Flood Zone	Existing uses	Proposed Uses	PPS25 Vulnerability Classification
1	Retail Offices Restaurants Leisure Business Transport Infrastructure Residential	Retail Offices Restaurants Leisure Business Transport Infrastructure Residential	Less Vulnerable Less Vulnerable Less Vulnerable Less Vulnerable Less Vulnerable Essential Infrastructure More Vulnerable

Hackney Wick Area Action Plan



Hackney Wick has been identified as a key opportunity area for regeneration due to the catalytic effect of the Olympic Games and associated infrastructure, in addition to the extensive regeneration in this area of London. The AAP highlights the potential to create a strong and distinctive community hub around an improved Hackney Wick station, including new homes, businesses and shops as well as social and community infrastructure.

Economic restructuring has affected existing businesses and there is new scope for the intensification of industrial areas. This will provide new standards for modern, well designed industrial areas and provide a diverse range of employment opportunities.

A number of large brownfield sites have been identified for development within the Hackney Wick area for a range of industrial and residential uses.

Due to the flood risks in this area, it may be challenging to demonstrate that proposed developments are 'safe' under the current flood defence systems. Improvements in the flood defence and management of this area may be required to reduce the flood risks and enable future development to proceed.

Flood Zone	Existing uses	Proposed Uses	PPS25 Vulnerability Classification
1, 2, 3	Industrial Business Transport Infrastructure Residential	Industrial Business Transport Infrastructure Residential Retail	Less Vulnerable Less Vulnerable Essential Infrastructure More Vulnerable Less Vulnerable

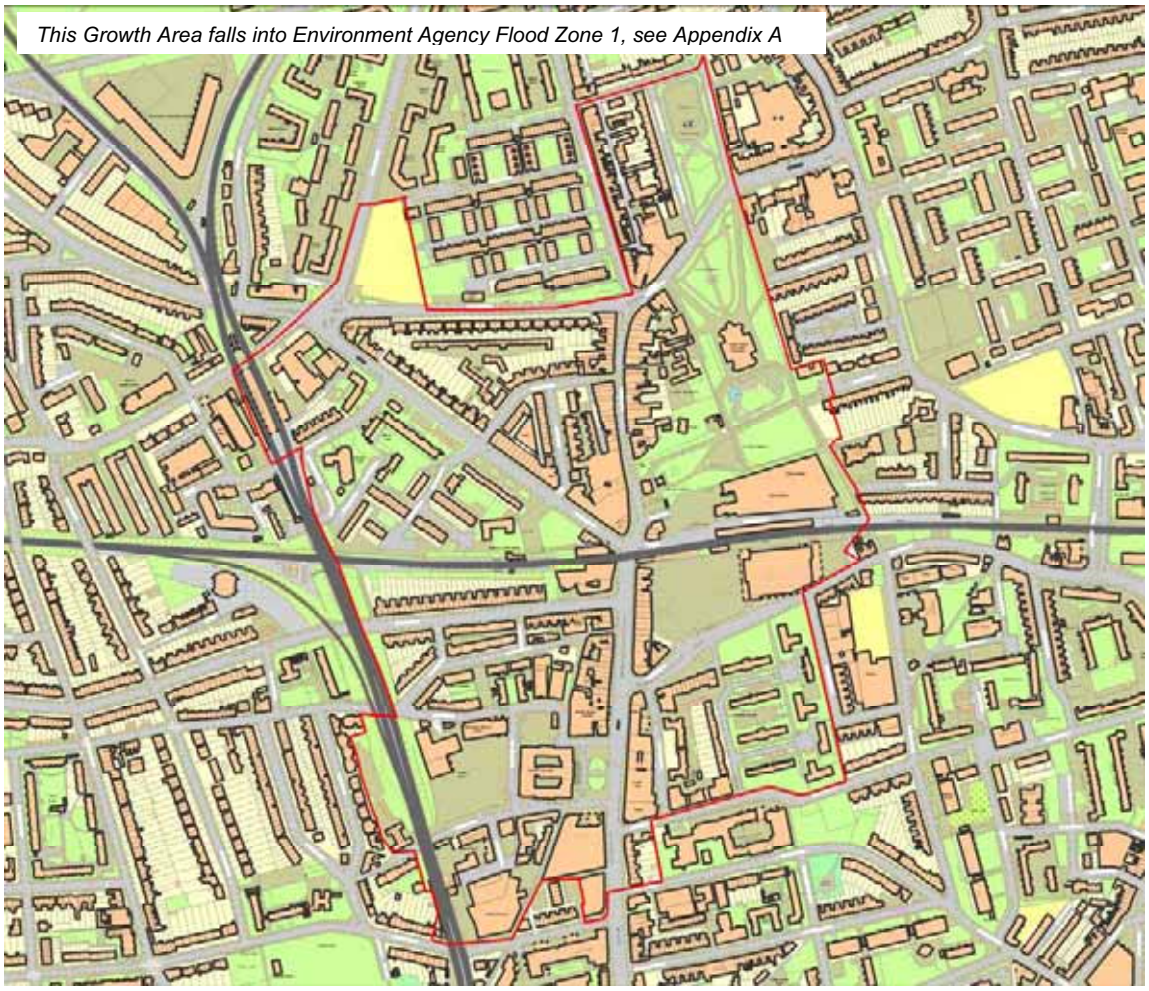
Manor House Area Action Plan

Manor House is a local centre located in the north-west corner of LB Hackney. This AAP has Manor House tube station in the centre and provides the entry point into Woodberry Down Estate and Finsbury Park.

The objectives of this AAP are to create a strong and distinctive neighbourhood hub around Manor House Station, promote mixed employment, retail and residential uses, improve access and address barriers to movement to and within the area and promote sustainable transport in the area.

Flood Zone	Existing uses	Proposed Uses	PPS25 Vulnerability Classification
1	Retail Offices Restaurants Leisure Business Transport Infrastructure Residential	Retail Offices Restaurants Leisure Business Transport Infrastructure Residential	Less Vulnerable Less Vulnerable Less Vulnerable Less Vulnerable Less Vulnerable Essential Infrastructure More Vulnerable

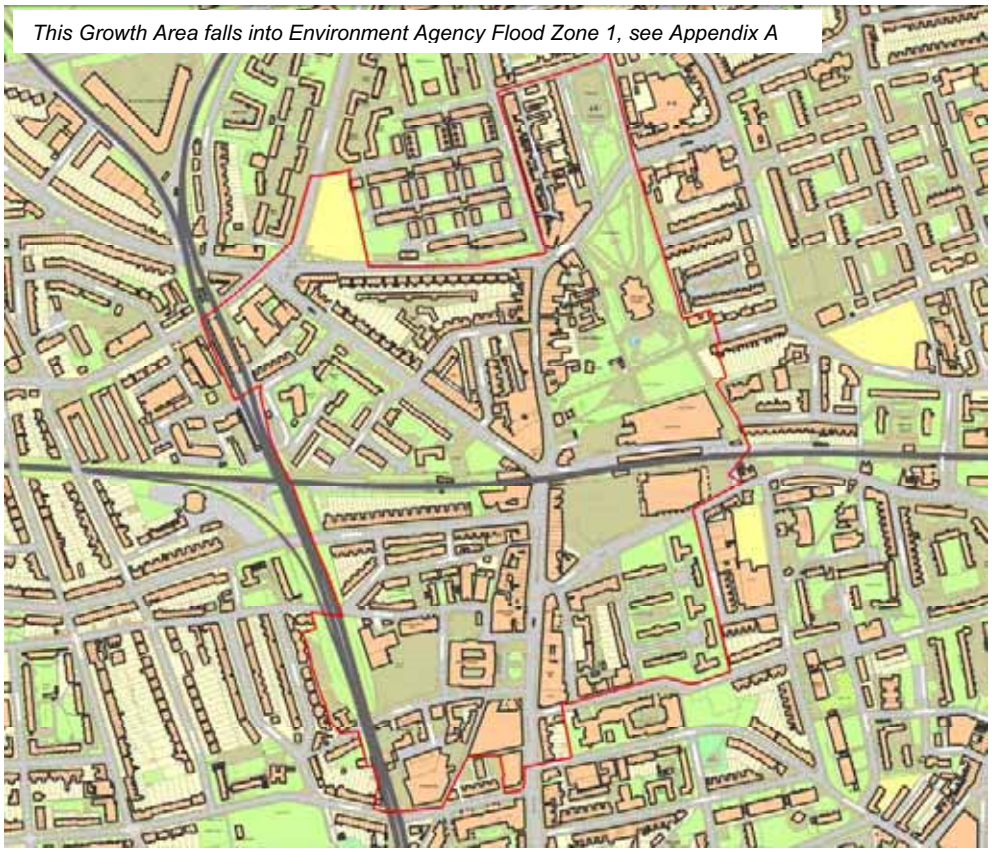
City Fringe: Shoreditch Opportunity Area Planning Framework, led by GLA



The **Shoreditch** Opportunity Area comprises 42 hectares, approximately half of which is located in the south of the Hackney borough. It is considered a major destination characterised by its diverse historic character and identity, good transport links and its role within the local economy as a focus for local and regional growth and jobs. South Shoreditch has a key role supporting London's position as an international financial and business centre. The objectives for this area are to promote a mix of development uses with 50% floor space taken by employment use and 50% residential.

Flood Zone	Existing uses	Proposed Uses	PPS25 Vulnerability Classification
1	Retail Offices Restaurants Leisure Business Transport Infrastructure Residential	Retail Offices Restaurants Leisure Business Transport Infrastructure Residential	Less Vulnerable Less Vulnerable Less Vulnerable Less Vulnerable Less Vulnerable Essential Infrastructure More Vulnerable

Woodberry Down Masterplan Area



Woodberry Down is a post-war estate comprising 1980 residential units which is being redeveloped to provide 4644 residential units. The vision for the Woodberry Down is to transform the estate into a neighbourhood comprising a variety of distinctive quarters with a new mixed use centre along Seven Sisters Road and an area with community focus along Woodberry Grove. The character of each area will be developed, maximising the potential of its natural assets including the reservoir, New River and views of Finsbury Park.

The vision for this area will be achieved through increasing the overall density of the development, developing 6 distinctive residential quarters, enhancing the provision of community facilities which are integrated within the urban fabric, creating a mix of retail uses at key nodes of activity, improving transport links and maximising opportunities for new employment.

Flood Zone	Existing uses	Proposed Uses	PPS25 Vulnerability Classification
1	Retail Offices Restaurants Leisure Business Transport Infrastructure Residential	Retail Offices Restaurants Leisure Business Transport Infrastructure Residential	Less Vulnerable Less Vulnerable Less Vulnerable Less Vulnerable Less Vulnerable Essential Infrastructure More Vulnerable

4 Sequential Test

4.1 Sequential Test

1. Are the proposed Growth Areas in 'Flood Zone 1 – Low Probability' of flood risk?	
Yes	Growth Areas wholly in Flood Zone 1 include: • Dalston • Hackney Central • Manor House • South Shoreditch • Woodberry Down **These Growth Areas are sequentially appropriate. Further detailed Sequential Tests using the SWMP will be carried out within each Growth Area.**
No	For Growth Areas in Flood Zones 2 and 3 proceed to Question 2: • Hackney Wick
2. Could the following proposed Growth Area in Flood Zones 2 and 3 alternatively be located in Flood Zone 1 Low Probability of flood risk? (Hackney Wick)	
No	*Identify alternative areas that were considered and explain why they were dismissed. Explain why the proposals cannot be redirected to Flood Zone 1.* Hackney is highly urbanised and there are few alternative areas for development. Objective 17 of the Sustainability Appraisal for the Core Strategy encourages more efficient and effective use of land through infilling of existing urban centres and therefore the following areas have been considered: Dalston – already identified for development and regeneration. Shoreditch – already identified for development and regeneration. Hackney Central – already identified for development and regeneration. Woodberry Down and Manor House – already identified for development and regeneration, comprising predominantly residential and supporting social infrastructure uses. Mixed use industrial developments proposed for Hackney Wick could not be accommodated in this area. Stoke Newington – this is a key residential area in northwest Hackney including an independent shopping economy and recreational hub surrounding Clissold Park and Leisure Centre. It is considered that industrial revitalisation and mixed used developments proposed for Hackney Wick could not be accommodated in areas such as this. Similar reasoning applies to the broad areas of Stamford Hill and Haggerston which have both cultivated a unique sense of place and would not be suitable to accommodate mixed use industrial development that has been proposed for Hackney Wick. Additional justification for development within Hackney Wick:

	Hackney Wick has been identified within regional and local planning documents as a priority area for growth and development to maintain the existing community and improve the area. Polices 2A.10 and 3B.4 of the London Plan (2008) identify Hackney Wick as a Strategic Industrial Location in which cultural quarters should be encouraged within identified priority regeneration areas and town centres and mechanisms should be established to promote sustainable property management. The area surrounding Hackney Wick Station has been identified as one such priority regeneration area. The East London Sub-Regional Development Framework (2006) identifies the key issues of co-ordinating the Games with the rest of the Valley to ensure efficient, sustainable regeneration; managing the release of industrial land while ensuring retention of capacity essential for strategic employment/service functions; incorporating the extension of the LVRP (as set out in the Olympic Legacy proposals) and ensuring good access from adjacent communities; and securing the potential for high quality residential led mixed development with a strong employment component, which meets local need in terms of size. This framework clearly demonstrates the importance of growth and development in locations such as Hackney Wick. The vision for the Lower Lea Valley and London Riverside (Engines for Growth) is to deliver exemplary sustainable development on a dramatic scale, integrating existing and new communities through excellent design with new infrastructure and new public spaces. This document sets down aims to create a network of compact mixed use, mixed tenure neighbourhoods complete with good public transport, shops, leisure facilities, schools, healthcare and jobs. Regeneration within Hackney Wick will therefore feed into the wider aims for sustainable development in the Lower Lea Valley. The LB Hackney Lower Lea Valley AAP (2004) provides a vision for the study area as a key business location for the creation of a wide-ranging employment park and a regeneration opportunity for leisure, residential, retail and office developments. The success of this hinges on the ability to improve permeability of Hackney Wick Fish Island and build on the existing public transport opportunities. Policy 1 of the Core Strategy Proposed Submission Document (June 2009) identifies Hackney Wick as a Growth Area and Policy 5 'Hackney Wick New Community' outlines the Council's intention to direct investment and employment led mixed development to Hackney Wick, maximising on the strategic industrial and priority employment designations and Olympic Legacy opportunities. **If the site is in 'Flood Zone 2 Medium Probability' proceed to Question 3.** **If the site is in 'Flood Zone 3 High Probability' proceed to Question 4.**
3. For sites in 'Flood Zone 2 Medium Probability' (Hackney Wick AAP)	
3a. Are the proposed uses in Water Compatible, Less Vulnerable, More Vulnerable, or Essential Infrastructure Flood Risk Vulnerability Classifications set out in Table D2 (PPS25, 2006)?	
Yes	**List the proposed uses in these classifications** Less Vulnerable *Industrial, Commercial, Retail, Offices, Community uses* More Vulnerable *Residential* Essential Infrastructure *Transport Infrastructure*

	These proposals are appropriate if located in Flood Zone 2 and there is no need to proceed with the Exception Test. However due to the potential flood risks in the Hackney Wick area, detailed Flood Risk Assessments (FRAs) will be required for applications in this area to address mitigation and egress/access. **It has been identified that parts of Hackney Wick are at high risk of flooding from the River Lee, and flood depths could reach 1.4m in some areas. It should be noted that without the implementation of a flood alleviation scheme, it may be a challenge to produce a FRA which is able to demonstrate that the development is 'safe'.**
No	**List the proposed uses in these classifications** None **For these sites proceed to Question 3b.**
3b. Can the more flood sensitive development types (Highly Vulnerable and More Vulnerable) be directed to parts of the site where the risks are lower for both the occupiers and the premises themselves?	
Yes	**Identify how risks have been reduced** Further information regarding the detailed nature of flood risk will be provided as part of a Level 2 SFRA for Hackney and site specific Flood Risk Assessments completed for individual developments. The findings of these documents should be considered throughout the development of Growth Areas and the detailed design of future development sites. The Masterplan for the Hackney Wick AAP is currently being completed, and will employ a sequential approach using the information in the Level 2 SFRA with respect to the location of Highly Vulnerable and 'More Vulnerable' development within the AAP. The purpose of the Level 2 SFRA is also to determine whether the Exception Test can be passed. It is possible that in some parts of Hackney Wick, it may not be possible to satisfy part c) of the Exception Test (Chapter 5). **Proceed with Exception Test.**
No	**Explain why the development types cannot be relocated** The Hackney Wick area requires regeneration through development. The justification for development in this area is outlined in question 2 above. **Proceed with the Exception Test.**
4. For sites in 'Flood Zone 3a High Probability' (Hackney Wick AAP)	
4a. Are the proposed uses in Water Compatible or Less Vulnerable Flood Risk Vulnerability Classifications set out in Table D2 (PPS25, 2006)?	
Yes	**List the proposed uses in these classifications** Less Vulnerable *Industrial, Commercial, Retail, Offices, Community uses* **These proposals are sequentially appropriate in Flood Zone 3a and there is no need to proceed with the Exception Test. It will be necessary to prepare a Flood Risk Assessment for these developments and consideration should be made early in the planning process with respect to flood risks, mitigation and egress/access considerations.**
No	**List the proposed uses in these classifications** More Vulnerable

	Residential Essential Infrastructure *Transport Infrastructure* **For these proposed uses proceed to Question 4b.**
4b. Is the development proposal in the Highly Vulnerable Classification?	
No	Proceed to Question 4c.
4c. Can the more flood sensitive development use types be directed to parts of the site where the risks are lower both for the occupiers and the premises themselves?	
	Following a more detailed assessment of flood risk within a Level 2 SFRA for Hackney, the Masterplan will be reviewed to identify if a sequential approach can be used to direct the 'More Vulnerable' uses away from the sources of flooding and closer to areas of lower flood risk where variation exists within a site. In all cases it must be shown that the development is safe, through the production of a site specific Flood Risk Assessment and will comply with the Environment Agency requirements and the Exception Test if applicable. **Proceed to the Exception Test.**

4.2 Summary

The following Growth Areas are located in Flood Zone 1 and are therefore sequentially appropriate in accordance with the Sequential Test; Dalston, Hackney Central, Manor House, Shoreditch and Woodberry Down. The findings of a Surface Water Management Plan should be considered throughout the spatial planning process within each of these Growth Areas to maintain a sequential approach and ensure the effective management of surface water flooding.

Hackney Wick is located within Flood Zones 1, 2 and 3 and therefore alternative options for this Growth Area have been considered. It has been concluded that alternative areas are not suitable to accommodate the redevelopment proposed for Hackney Wick. In addition it has been identified that there is considerable drive for regeneration and development from regional and local policies for the area. As a result it is recommended that the Sequential Test is applied within the Hackney Wick area to ensure sites of lowest flood risk are developed first and where necessary the Exception Test would provide a valid means of justifying sustainable exceptional development in this area, to ensure that the development is safe for its lifetime, will not increase flood risk elsewhere, and where possible will reduce risk overall.

In order to assist in the application of the Sequential and Exception Tests within Hackney Wick, as well as other parts of eastern Hackney, more detailed information regarding the nature of the flood risk will be required which can be supplied through the production of a Level 2 SFRA and Surface Water Management Plan for the borough.

5 Exception Test

The purpose of the Exception Test is to ensure that new development is only permitted in medium and high flood risk areas where flood risk is clearly outweighed by other sustainability factors and where the development will be safe during its lifetime, considering climate change. The Exception Test comprises three criteria, all three of which must be satisfied before a development may be considered appropriate within an area of medium or high flood risk. LB Hackney have identified the factors that need to be considered for parts a) and b) for sites in the Hackney Wick AAP, however part c) of the Exception Test must be demonstrated through a site specific Flood Risk Assessment by the developer.

The Level 2 SFRA and SWMP will provide more detailed information regarding flood risk in the area, and will facilitate application of the Sequential Test within Growth Areas, as well as exploring whether the Exception Test can be passed. In some cases, it may be found that it will not be possible to demonstrate that the development will be safe and therefore the chosen site is not appropriate for development.

5.1 Part a) Wider Sustainability to the Community

It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by the SFRA where one has been prepared. If the DPD has reached the 'submission' stage (Figure 4 of PPS12; Local Development Frameworks) the benefits of the development should contribute to the Core Strategy's Sustainability Appraisal.

As part of their Sustainability Appraisal, LB Hackney has prepared 20 sustainability objectives, which are included in Table 6-1. Individual developments should be scored against these sustainability criteria to determine whether they will provide wider sustainability benefits to the community that outweigh the flood risk and satisfy part a) of the Exception Test. Where a development fails to score positively against the SA, LB Hackney could consider planning conditions or Section 106 Agreements.

Table 5-1 Criteria from LB Hackney Sustainability Appraisal

LB Hackney Sustainability Appraisal Objectives	
1	To protect and enhance the biodiversity, flora and fauna of the borough
2	To ensure efficient use of natural resources
3	To improve air quality
4	To reduce noise pollution
5	To minimise flood risk and encourage SUDS for new developments
6	To reduce the need to travel and encourage use of public transport including walking and cycling
7	To reduce greenhouse gas emissions and promote the efficient use of energy in all activities
8	To promote sustainable design
9	To protect and enhance the historic environment and archaeological aspects of the borough
10	To reduce poverty and social exclusion and promote cultural diversity
11	To maintain and enhance Metropolitan Open Land and open spaces and enhance the landscape character

12	To improve the health of the people and promote healthy lifestyle
13	To improve educational attainment and skill level of the population
14	To reduce crime, antisocial behaviour and fear of crime in the borough
15	To increase the number of decent and affordable houses
16	To provide access to an adequate range of support and community facilities
17	To encourage complementary activities and land uses together to make more efficient and effective use of land
18	To minimise waste and maximise recycling in the borough
19	To promote sustainable economic growth
20	To generate employment opportunities for everyone

5.2 Part b) Redevelopment of Previously Developed Land

The development must be on developable previously developed land or, if it is not on previously developed land, it must be demonstrated that there are no reasonable alternative sites on developable previously developed land.

Planning Policy Statement 3: Housing defines previously developed land as:

'Previously-developed land is that which is or was occupied by a permanent structure, including the curtilage of the developed land and any associated fixed surface infrastructure.'

The definition includes defence buildings, but excludes:

- Land that is or has been occupied by agricultural or forestry buildings.
- Land that has been developed for minerals extraction or waste disposal by landfill purposes where provision for restoration has been made through development control procedures.
- Land in built-up areas such as parks, recreation grounds and allotments, which, although it may feature paths, pavilions and other buildings, has not been previously developed.
- Land that was previously-developed but where the remains of the permanent structure or fixed surface structure have blended into the landscape in the process of time (to the extent that it can reasonably be considered as part of the natural surroundings).

There is no presumption that land that is previously-developed is necessarily suitable for housing development nor that the whole of the curtilage should be developed.

Large parts of Hackney Wick are already developed and are therefore likely satisfy part b) of the Exception Test.

5.3 Part c) Safe from Flood Risk

A FRA must demonstrate that the development will be safe, without increasing food risk elsewhere, and, where possible, will reduce flood risk overall.

There are a number of ways a new development can be made safe:

- Avoiding flood risk by not developing in areas at risk from floods;
- Substituting higher vulnerability land uses for lower vulnerability uses in higher flood risk locations and locating higher vulnerability uses in areas of lower risk on a strategic scale, or on a site basis;
- Providing adequate flood risk management infrastructure which will be maintained for the lifetime of the development; and
- Mitigating the potential impacts of flooding through design and resilient construction.

The purpose of the Level 2 SFRA and SWMP will be to provide more detailed information regarding flood risk across the borough. This will be useful when trying to apply the sequential approach within Growth Areas and within individual development sites. It will also facilitate the application of part c) of the Exception Test and the identification of policies and practices for inclusion within LB Hackney's Local Development Documents to ensure that development in areas of flood risk satisfy the requirements of the Exception Test.

The PPS25 Practice Guide (DCLG 20080) provides guidance for providing safe development in Chapter 6 – Risk Management by Design, and Chapter 7 – Residual Risk.

Joint Defra and Environment Agency guidance, 'Flood Risk Assessment Guidance for New Development Technical Report FD2320/TR2' published in October 2005 provides further guidance and tools for assessing and managing flood risk for new development.

The definition of safe should be clarified and agreed between LB Hackney and the Environment Agency and may require additional considerations depending on the precise nature of the proposed development and flood risk on a site by site basis.

6 Conclusions & Recommendations

6.1 Sequential Test

The majority of the LB Hackney is located in Flood Zone 1, classified as low probability of flooding. All types of development proposed within Flood Zone 1 are considered sequentially appropriate inline with the Sequential Test. Therefore all types of future development within Dalston, Hackney Central, Manor House, South Shoreditch and Woodberry Down are sequentially appropriate in accordance with PPS25. Consideration needs to be made with respect to surface water when the LB Hackney SWMP is complete.

The Hackney Wick AAP is located in Flood Zones 1, 2 and 3. Alternative areas have been considered to accommodate the development proposed for Hackney Wick and it has been demonstrated that the regeneration cannot be redirected to an area of lower flood risk in the borough. Regional and local policy provides substantial impetus for the regeneration and redevelopment of Hackney Wick in order to sustain the existing local community and sustain the industrial potential of the area.

In the light of the flood risk posed to Hackney Wick it is highly likely that the Exception Test will be required for future development sites within Hackney Wick.

Windfall Sites

Windfall Sites are sites which become available for development unexpectedly and are therefore not included as allocated land in a planning authority's development plan.

Should a site become available that is not located within one of the Growth Areas, the Sequential Test should be applied on an individual site basis and the developer will need to provide evidence to the LPA that they have adequately considered other reasonably available sites. This will involve considering windfall sites against other sites allocated as suitable for housing plans.

The following steps should be followed for windfall sites:

1. Identify if the sequential test is required- PPS25 states that if the application is minor development or for a change of use, the Sequential Test of Exception Test is not required. The application will still need to meet the requirements of an FRA as set out in Table D.1 of PPS25.

2. If the Sequential Test is required, identify which Flood Zone the site is located within using the Environment Agency flood maps (included in Appendix A).

3. Agree scope and considerations for the site specific Sequential Test and Exception Test if necessary with the LPA and Environment Agency.

6.2 Recommendations

Strategic Study into Potential Flood Alleviation Schemes

The River Lee currently provides protection from the 1 in 70 year event. The Environment Agency's Flood Risk Management Strategy has identified that it is not cost beneficial for the Environment Agency to build a scheme to defend this area.

It has been recommended that consultation is sought with the Greater London Authority, London Development Agency, and the Olympic Delivery Authority to explore options for a multi-agency flood alleviation scheme to manage the flood risk posed to existing people and property in the Lower Lea Valley. This may build on work undertaken by Capita Symonds which considered a suite of potential flood alleviation options including the use of Hackney Marsh as a flood storage area and improving flood defences along the Hackney Cut.

However it should be noted that future flood alleviation in the area may require additional funding from developer contributions through Section 106 Agreements.

Level 2 Strategic Flood Risk Assessment

It is recommended that a Level 2 SFRA is completed for Hackney to provide more detailed information regarding the nature of flood risk across the borough. This will use existing data from the modelling undertaken on the River Lee to assess the flood risk posed to the Hackney Wick AAP in terms of flood water depth and hazard classifications. The Level 2 SFRA will enable an assessment of whether the Exception Test can be passed in areas of flood risk. Where flood risk is high and it is unlikely that the development will be deemed safe, it will be recommended that the development is not appropriate.

Throughout the preparation of this assessment, the Environment Agency should be consulted regarding issues such as provision of access/egress, finished floor levels, use of flood resilient/resistant design, floodplain compensation storage, flood routeing and flood evacuation procedures to provide detailed guidance for developers. In some cases it is likely that development design will be driven by these constraints and developers should bear this in mind as early as possible in the master planning stages.

This document will also provide guidance on the requirements for site specific FRAs to ensure that they are sufficiently robust to support applications for development in Flood Zones 2 and 3 and where necessary to demonstrate satisfaction of part c) of the Exception Test.

Strategic Surface Water Management Plan

A spatial planning approach to the Growth Areas is recommended to ensure the most efficient use of land by balancing competing demands within the context of sustainable development. One of these competing demands will be the space required to effectively manage flood risk. The proposed increase in development within each of the six Growth Areas has the potential to increase the quantity, intensity and timing of surface water runoff from these areas. To ensure that there is no downstream increase in flood risk to neighbouring areas it is recommended that surface water flood risk is fully assessed and managed on a strategic scale.

The London Plan requires a return to Greenfield runoff rates wherever possible from future development sites. The development scheme that has been prepared for the Woodberry Down Estate is an example of how these drainage requirements can be achieved, and this scheme provides an invaluable model of best practice for future development in the borough.

To this end, we recommend that the LB Hackney undertake Surface Water Management Plan (SWMP) for all Growth areas in order to fully identify the suitability of a strategic SUDs scheme, for example regional flood attenuation, rainwater harvesting, property-level SUDs etc.

One of the objectives of a SWMP is to extend the identification of known localised problems determined in the SFRA and build upon data collected during the Summer 2007 event, examining the causes, extent and effects of surface water flooding events. This will culminate in the identification and the prioritisation of

Critical Drainage Areas (CDAs). This information will be used to establish a shared understanding of flood risk from all sources which will aid in future drainage asset management and will help with coordination of future investments and the operational response to future flooding events.

Emergency Planning

It is recommended that the Hackney Emergency Planning Team are involved throughout the planning process to ensure that, where necessary, strategies are put in place and the Emergency Plan adapted in order to direct people to safety during times of flood.

Flood evacuation plans for individual developments should also be developed through liaison with the emergency planners and emergency services.

Detailed Sequential Test for Growth Areas

Following the completion of a Level 2 SFRA and SWMP for Hackney, it will then be appropriate to apply a more detailed Sequential Test to each of the AAP areas. This will ensure that within each area, sites at lower risk of fluvial or surface water flooding are preferentially developed, before those at higher risk.

7 References

Annual Monitoring Report 2007-2008, Local Development Framework, London Borough of Hackney, December 2008

Core Strategy Preferred Policy Options DPD, Local Development Framework, London Borough of Hackney, April 2008

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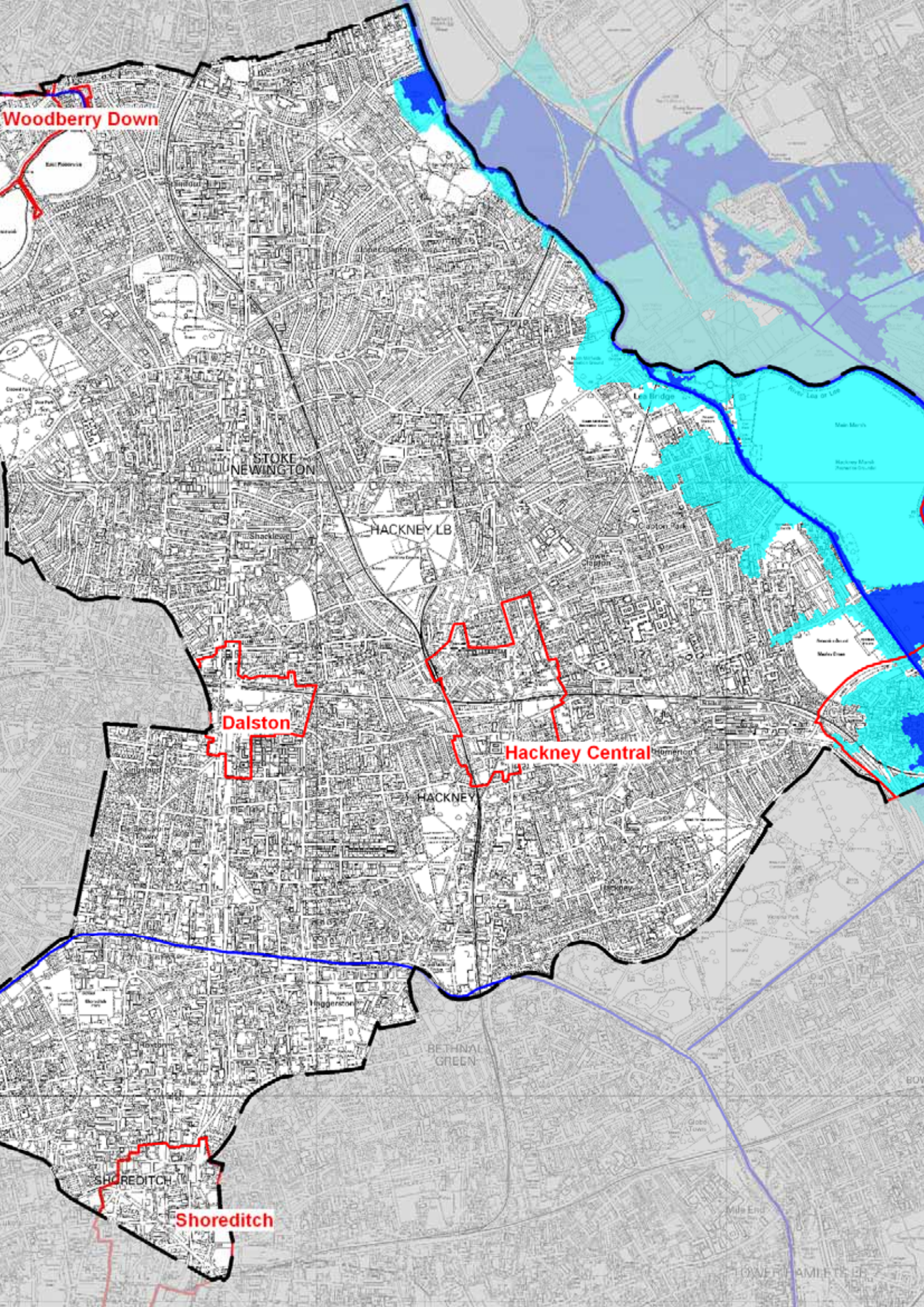
The London Plan Spatial Development Strategy for Greater London, Consolidated with Alterations since 2004, February 2008, Greater London Authority

Thames Catchment Flood Management Plan, July 2008, Environment Agency

Water Matters: The Mayors Draft Water Strategy, 2007, Greater London Authority

Appendix A

Figure A Core Strategy Growth Areas and Environment Agency Flood Zones


Woodberry Down
STOKE NEWINGTON
HACKNEY LB
Dalston
Hackney Central
HACKNEY
SHOREDITCH
Shoreditch
BETHNAL GREEN