

1 Explanatory Note	3
2 Purpose of the Document	5
3 Housing Standards	7
4 Design and Conservation	19
Conservation Area Guidelines	19
Basements and Lightwells	28
Buildings of Merit	35
Accessible and Inclusive Design across the borough	39
Shopfront Design across the borough	52
Archaeology and Heritage Assets	62
5 Noise and Nuisance	73
6 Air Quality	87
7 Energy	97
8 Contamination	105
9 Sustainable Drainage Systems (SuDs)	117
10 Flood Risk and Water Efficiency	125
11 Biodiversity	137
12 Sustainable Design and Construction	157
13 Transport	169
14 Waste Management	191
15 Residential Moorings	207
16 Glossary	215
17 Technical Appendices	233
Appendix 1 - Basements and Lightwells	233
Appendix 2 - Biodiversity	235
Appendix 3 - Land Contamination	245
Appendix 4 - Noise and Environmental Pollution	255
Appendix 5 - Storage of refuse and recyclables	276

Contents

1 Explanatory Note

1.1 This Supplementary Planning Document (SPD) has been prepared under the terms of the Planning and Compulsory Purchase Act 2004 and the accompanying Town and Country Planning (Local Planning) (England) Regulations 2012.

1.2 The SPD has been subject to a 4 week consultation with key stakeholders, including a number of local amenity and community groups. The SPD is supported by an equality impact assessment carried out under the Equality Act 2010. The council considered the requirements of the Environmental Assessment of Plans and Programmes Regulations 2004 and specifically Schedule 1 (the criteria for determining the likely significance of the effects on the environment) and came to the conclusion that an SEA was not required.

1.3 The SPD provides supplementary detail to policies concerned with a variety of topics within the Local Plan. It may also provide supplementary detail to any neighbourhood plans that may come into effect in the borough.

1.4 The SPD is divided into sections relating to specific topics, and within these sections are sub-sections that are concerned with particular policy areas.

1 Explanatory Note

2 Purpose of the Document

2.1 This document was prepared under the terms of the Planning and Compulsory Purchase Act 2004 and the accompanying Town and Country Planning (Local Planning) (England) Regulations 2012.

2.2 The overall objectives of the SPD are to:

- establish more detailed guidance on the application of policies within the emerging Local Plan as well as any neighbourhood plans that come into effect that are concerned with managing development proposals within the borough; and
- help applicants make successful applications and to aid infrastructure delivery.

2.3 The document provides policy guidance covering a number of different topics. Each topic area includes a brief identification of the overarching policy context, namely national, London and local policy. This information includes reference to the National Planning Policy Framework and to relevant London Plan and Local Plan policies, but does not include detail for these policies. Additionally, for each topic area there is a short description of the local context, for example the section of the SPD on archaeology provides detail of existing archaeological assets in the borough.

2.4 The key elements of the SPD, however, are the key principles that the council will apply when considering development proposals. The key principles have been developed to provide more detail on the application of the strategic and borough wide policies in the Local Plan and should be read alongside the Local Plan, as well as other relevant Supplementary Planning Documents (SPDs) where these exist, to get a full understanding of the council's position on particular issues. The key principles should also be considered alongside any neighbourhood plans that are prepared.

2.5 The SPD will be a material consideration in planning decisions although it is not part of the development plan.

2 Purpose of the Document

3 Housing Standards

3.1 Housing conversions and other alterations to existing buildings to form new dwellings are common in the borough. The borough is a highly built up area and new development and conversions are likely to impact upon the existing built environment and neighbouring amenity in numerous ways. This section aims to set out the Local Plan policies, local standards used to assess housing quality of all forms and managing the impact of development.

3 Housing Standards

Policy Context - Housing Standards

National Policy

The National Planning Policy Framework (NPPF), published in March 2012, seeks to secure high quality design and a good standard of amenity for existing and future occupants.

Certain works to dwellings, including some extensions may not require planning permission from the council and may be carried out under permitted development rights. Those making use of permitted development rights are still advised to consider this guidance. In Conservation Areas, Article 4 Directions remove certain permitted development rights and planning permission will still be required.

London Plan

The London Plan 2016 and accompanying Housing SPG (adopted in March 2016) provides guidance on the quality and design of homes and of the surrounding area to help create good, liveable neighbourhoods. The London Plan provides a range of policies and guidance for use on a London wide basis.

The council considers that much of the guidance in the Mayor of London's Housing SPG is relevant to the local circumstances in Hammersmith & Fulham and supports the policies in the LBHF Local Plan. The council will rely on the Mayor of London's Housing SPG when assessing relevant planning applications, except where other or more detailed guidance is specified below.

The London Plan policies of particular relevance are: Policy 3.5: Quality and Design of Housing Developments which states that, amongst other things, "the design of all new housing developments should enhance the quality of local places, taking into account ... local character, density.... the needs of children and older people". Policy 7.6: Architecture is also relevant and states that architecture "should incorporate the highest quality materials and design appropriate to its context".

Local Plan

This guidance is aimed at providing greater clarity and application of the Local Plan policies. This SPD does not duplicate existing policy or create any additional cost, instead it seeks to provide further guidance to amplify the development context and to assist the development management process. The Local Plan housing, design and Sustainable Drainage Systems (SuDS) policies are to be applied across the borough and focus on providing high quality design and housing to meet the needs for all.

The following policies are particularly relevant here, HO4: Housing Quality and Density seeks to improve the quality and mix of new housing in the borough and access to amenity space; HO11: Detailed Residential Standards sets out a number of considerations to ensure that the design and quality of all new housing, including new build, conversions and change of use is of a high standard, well designed, accessible and protects the amenity of neighbours; and, DC4: Alterations and Extensions (including Outbuildings) identifies the requirements in terms of alterations and extensions, ultimately seeking to ensure scale, setting and character are taken into account and that new development does not dominate and is integrated into the existing building.

Other relevant Local Plan policies are:

- HO2: Housing Conversion and Retention
- OS3: Playspace for Children and Young People
- OS5: Greening the Borough
- DC4: Alterations and Extensions to Existing Buildings

- DC11: Basement Accommodation and Lightwells
- CC3: Minimising Flood Risk and Reducing Water Use
- CC4: Minimising Surface Water Run-off with Sustainable Drainage Systems

Key Principles

Key Principle - HS1

Amenity space

New dwellings

All new dwellings should have access to an area of amenity space, appropriate to the type of housing being provided. The council will expect to see a more generous provision of outdoor amenity space than the minimum provision standards in the Housing SPG and the Play and Informal Recreation SPG accompanying the London Plan.

Every new family (3 or more bedrooms) dwelling should have access to amenity or garden space of not less than 36 square metres. Family dwellings (3 or more bedrooms) with accommodation at garden level should have at least one area of private open space with direct access to it from the dwelling. For family dwellings on upper floors this space may be provided either as a balcony or terrace and/or communally within the building's curtilage.

Where communal open space is provided, development proposals should demonstrate that the space:

- has a well designed area for children's play adequate to meet the needs of the development;
- is overlooked by surrounding development;
- is accessible to wheelchair users and other disabled people;
- is designed to take advantage of direct sunlight;
- has suitable long term management arrangements in place to ensure open space is well managed over the life of the development.

Conversions

Where a property proposed for conversion includes a rear garden or amenity space, then it should be usable for a family sized unit (3 or more bedrooms) with direct access to it from that dwelling.

Balconies and Terraces

Where balconies and or terraces are provided they must be designed to respect the amenity of neighbours and be designed so as not to detract from the character of the surroundings. Balconies provided to meet amenity space requirements should have a minimum depth and width of 1500mm.

3.2 Access to high quality and adequate amounts of private open space significantly adds to the quality of life of all occupants. The space standards for private amenity space in this SPD have been established by considering the space needs for furniture, access and activities and in relation to the number of occupants. In relation to the provision of private gardens and amenity space the council will expect to see a more generous provision of outdoor amenity space than the minimum provision

3 Housing Standards

standards in the Housing SPG and the Play and Informal Recreation SPG accompanying the London Plan. The council will also aim to ensure that housing appropriate for families has direct access to garden or amenity space.

3.3 Balconies, terraces and gardens are multifunctional allowing occupants to engage in a range of passive and active recreational activities such as gardening and play. This is especially important in a heavily built up inner borough like Hammersmith and Fulham. Children in particular will benefit from having access to adequate areas of private open space for play activities. Where communal open space is provided it is important that it is well designed and safe and can be used by all residents including wheelchair users and has a range of functional uses.

3.4 Where family dwellings are proposed in a residential conversion scheme, they should be located at a level which gives direct and normally exclusive access to the garden. Conversion schemes often require ground floor extensions to provide the necessary accommodation, but such extensions should meet other guidance in this SPD. If the property is of sufficient size to allow family dwellings at upper levels then these should be provided with open amenity space. Such space may be in the form of a roof terrace but its provision will have to ensure that the amenities of neighbouring properties are adequately protected.

3.5 Balconies and terraces can provide dwellings with valued private open space. It is important that these are designed so as not to overlook surrounding properties as this can potentially adversely impact both upon the privacy and amenity of neighbours and the character of the area. They should also provide reasonable levels of sunlight and access to daylight. It is important that any balconies and terraces that are to be provided, are large enough to permit a range of functional uses such as accommodating seating and dining furniture.

Key Principle - HS2

Standards

Internal space standards for new development

All proposals which result in new living space should adhere to the London Plan internal space standards. Applicants are encouraged to view these as a minimum and exceed these standards where possible.

-	-	<u>Minimum GIA (m2)</u>			
		<u>1 Storey dwellings</u>	<u>2 Storey dwellings</u>	<u>3 Storey dwellings</u>	<u>Built in Storage</u>
<u>Number of bedrooms(b)</u>	<u>Number of bed spaces (persons)</u>				
1b	1p	39(37*)			1.0
-	2p	50	58		1.5
2b	3p	61	70		2.0
	4p	70	79		
3b	4p	74	84	90	2.5
	5p	86	93	99	
	6p	95	102	108	
4b	5p	90	97	103	3.0
	6p	99	106	112	
	7p	108	115	121	
	8p	117	124	130	
5b	6p	103	110	116	3.5
	7p	112	119	125	
	8p	121	128	134	
6b	7p	116	123	129	4.0
	8p	125	132	138	

3 Housing Standards

-	-	<u>Minimum GIA (m2)</u>			
<u>Number of bedrooms(b)</u>	<u>Number of bed spaces (persons)</u>	<u>1 Storey dwellings</u>	<u>2 Storey dwellings</u>	<u>3 Storey dwellings</u>	<u>Built in Storage</u>

Notes

1. * Where a one person dwelling has a shower room instead of a bathroom, the floor area may be reduced from 39m2 to 37m2, as shown bracketed.
2. The Gross Internal Area of a dwelling is defined as the total floor space measured between the internal faces of perimeter walls¹ that enclose a dwelling. This includes partitions, structural elements, cupboards, ducts, flights of stairs and voids above stairs. GIA should be measured and denoted in square metres (m2).
3. The nationally described space standard sets a minimum ceiling height of 2.3 meters for at least 75% of the gross internal area of the dwelling. To address the unique heat island effect of London and the distinct density and flatted nature of most of its residential development, a minimum ceiling height of 2.5m for at least 75% of the gross internal area is strongly encouraged so that new housing is of adequate quality, especially in terms of light, ventilation and sense of space.
4. The Gross Internal Areas in this standard will not be adequate for wheelchair housing (Category 3 homes in Part M of the Building Regulations) where additional internal area is required (or may be in the case of Category 2 homes) to accommodate increased circulation and functionality to meet the needs of wheelchair households.

Aspect

North facing (i.e. where the orientation is less than 50 degrees either side of north) should be avoided wherever possible.

3.6 In March 2015, Central Government introduced internal space standards for housing to be applied nationally. The London Plan has also adopted these standards and are to be applied across London boroughs. This policy reflects these space standards. These are to be applied across new forms of development and should be seen as a minimum and where possible higher standards should be achieved.

3.7 In respect of aspect, the reception of sunlight is important to the quality of life and therefore in designing new buildings the ability for at least one habitable room to receive sunlight should be a priority.

Key Principle - HS3

Internal space provision in residential conversions

Converted flats to provide for full self containment should have an internal area of at least 32.5 square metres where a separate bedroom is provided. Where a self-contained studio apartment or bedsitting room is provided there should be at least 25 square metres with a minimum living/sleeping area of 14 square metres.

The minimum net floor area of individual rooms within all converted self-contained residential units should be in accordance with the table below:

Internal Space Provision in Residential Conversions		
	3 or more bedrooms (family unit)	Less than 3 bedrooms(non-family unit)
Living room	15	12.5
Dining/Living room	16	14
Working kitchen	7.5	5.5
Kitchen/Diner	9	7.5
Main bedroom	12	12
Other double bedrooms	10.2	-
Single bedroom	6.5	6.5
Bathroom	3.7	3.7
<i>All areas are given in square metres</i>		

3.8 In determining whether an existing building is suitable for conversion, the council will consider whether the proposed development will provide rooms adequate in size for their intended use and occupancy. Unlike new residential developments, the conversion of existing dwellings requires the adaptation of existing layouts and rooms originally designed for different purposes. The size and shape of rooms should allow for a satisfactory layout and adequate range of furniture and equipment, where practicable should comply with Building Regulations M4 (2) 'accessible and adaptable' dwellings and M4 (3) 'wheelchair user dwellings'.

3.9 In terms of internal space standards, the London Plan and Local Plan policy acknowledges that residential conversions are more constrained by a number of factors, and there should be greater flexibility in relation to the national standards. Nevertheless, the council is keen to ensure that residential properties provide adequate liveable space and therefore includes the standards in the table above.

3 Housing Standards

Key Principle - HS4

Rear extensions

The council will have regard to the existing established rear building lines of adjoining properties in determining applications for rear extensions which project beyond the rear building line of the property as originally built.

However, planning permission will not normally be granted for any extension if:

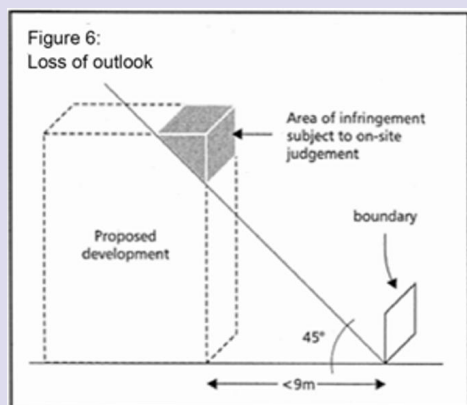
- (i) The proposed extension is more than 3.5 metres in length or, where the original property has already been extended, if the combined length of the existing and the proposed extensions would project more than 3.5 metres beyond the rear building line of the back addition as it was originally built; or
- (ii) The proposed extension would extend to within 4 metres of the rear boundary of the application property; or
- (iii) The proposed extension would cover more than 50% of the open area at the rear of the property as originally built or, where the original property has already been extended, if the cumulative area of the existing and proposed extensions would cover more than 50% of the open area at the rear of the property as originally built.

3.10 The borough already has a high density of development, with little space between buildings, particularly in the south of the borough. In addition to being important as an amenity for residents, back gardens and the open spaces at the rear of buildings can also be an important element in defining the character and appearance of an area. In some cases erecting a rear extension to a single dwelling house, may not require planning permission because it is identified as permitted development (The Town and Country Planning (General Permitted Development) Order (1995) (as amended)). In these cases, the Council encourages applicants to use these standards as a guide to reduce any impact upon neighbouring property and to produce high quality development.

3.11 However, in cases where planning permission is required, the council considers it necessary to limit the size of rear extensions to ensure that they do not result in an unacceptable loss of existing amenity space or adversely affect the existing sense of openness between buildings to a degree which could be considered unneighbourly or harmful to the existing established character of the area. Where the existing level of amenity space is already limited and/or the existing space between buildings is confined, it may not be appropriate to permit any rear extension.

Key Principle - HS6

Development, extensions and alterations - scale and massing



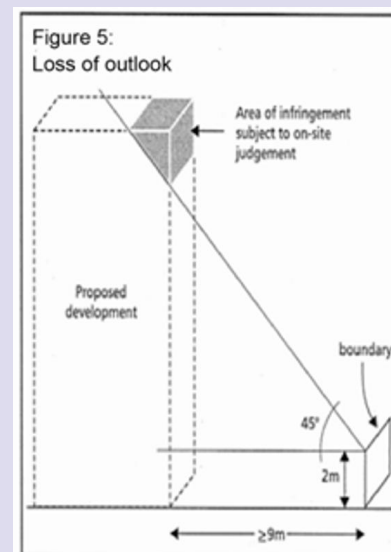
Any proposed new development and/or extensions to existing buildings should as a general rule, not result in an infringing angle of more than 45 degrees. Therefore, depending on the circumstances of the site the following rules will apply:

i) proposals that adjoin residential properties with rear gardens less than 9 metres in length to the adjoining rear boundary, the line should be measured from a point at the rear residential boundary at

ground level (see Figure 5); or,

ii) proposals that have rear gardens (or distance to adjoining residential properties) of more than 9 metres in length to the rear boundary, should be measured at a height of 2 metres from ground level from a point of the adjoining boundary (see Figure 6); or,

iii) if any part of the proposed building extends beyond these lines then on-site judgement will be a determining factor in assessing the impact the extension will have on the existing amenities of neighbouring properties (figures 5 and 6).



3.12 Residential terraced property forms a large part of housing in the borough and is the common form of layout of the majority of residential dwellings in the borough (mostly late Victorian/Edwardian properties). This form of housing usually comprises of a narrow single fronted main structure forming part of a terrace of either two or three floors with or without a semi-basement, together with a narrower projecting part at the rear (i.e., the back addition) which is usually of a lesser height and/or number of storeys. Extending these properties is limited given their proximity to neighbouring properties and the impact upon amenity. The scale and nature of the proposed development will vary and only the relevant policies will apply in assessing the proposal. This guidance seeks to identify best practice to protect the impact upon local amenity and neighbouring residents and how proposed extensions will be assessed.

3.13 Assessing the scale and massing of any proposal requires an understanding of the impact upon neighbouring residential development. In determining proposals, the council will either use the principle of the 45 degree angle, measured from either ground level or 2m above ground level depending on the size of the neighbouring garden of the rear property, and/or on-site judgement depending on the circumstances of the site and proposal. In some circumstances, the narrow width of the area between back additions, together with their existing length and height produce conditions which are already at the margins of acceptability in terms of the aspect and prospect afforded to those rooms whose windows face into this area. Any further extension to these back additions particularly above ground level could create unacceptable conditions for adjoining occupiers and will generally be resisted.

3.14 This principle is to be used to assess proposals that could include extensions, alterations and new development. This guidance can also be applied to non-residential applications, to mitigate the impact of development upon the surrounding residential area.

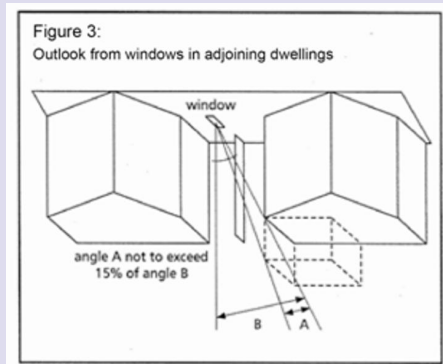
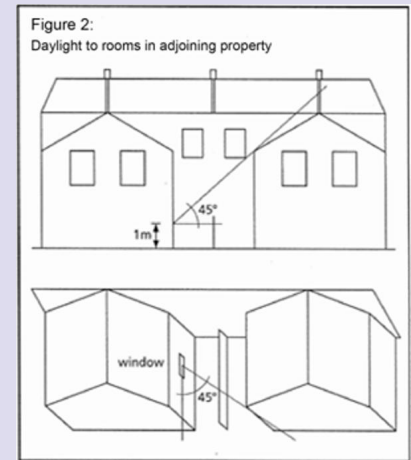
3 Housing Standards

Key Principle - HS7

Residential development - windows and outlook

i) Any proposed rear extension should not worsen the outlook from any rear habitable room window located lower than the proposed extension. Depending on the circumstances of the building, either of the following will apply:

- An extension to either the roof of the back addition or to the rear of the back addition should enable an unobstructed angle of 45 degrees to be achieved to any window to a habitable room on the ground floor of the back addition if that forms the sole window to that room. This requirement needs to be satisfied by measuring either over or around the back addition as extended (see figure 2);

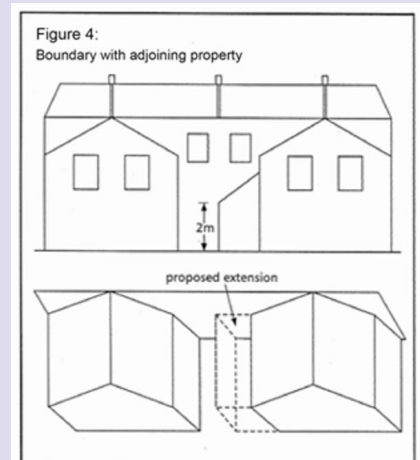


Where there is an existing rear addition, the angle of unobstructed visibility for this purpose should not be reduced by more than 15% (see Figure 3);

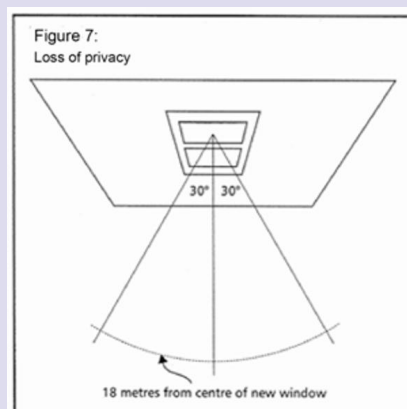
Where no rear addition currently exists at the level of the extension then on-site judgement will be a determining factor in assessing the effect which the extension will have on the existing amenities of the neighbouring properties.

ii) Any extension at the side of the back addition (being the back addition of the property as originally built) shall not extend above a height of 2 metres on the boundary with the adjoining property as measured from the ground level of the adjoining property.

The roof of the extension shall have a maximum angle of slope not exceeding 45 degrees (see Figure 4).



iii) Any new windows should be positioned at least 18 metres from existing habitable room windows. This will be measured by an arc of 60 degrees taken from the centre of the proposed new window to ensure there is no loss of privacy.



If this standard cannot be met then windows should be designed to ensure that no loss of privacy will occur (see Figure 7).

3.15 As the borough has a high density of development it is necessary to ensure that in the siting and design of all new buildings and extensions, the amenities of existing residential occupiers are not unduly affected and that there are safeguards against loss of outlook and loss of privacy. The main objections to new development in this borough relate to loss of sunlight, daylight, outlook and privacy. This should be used to assess the impact of residential extensions, alterations and new buildings.

Key Principle - HS8

Residential development - balconies and terraces

i) Planning permission will not be granted for roof terraces or balconies if the use of the terraces or balcony is likely to cause harm to the existing amenities of neighbouring occupiers by reason of noise and disturbance; or, if it would result in an additional opportunity for overlooking or result in a significantly greater degree of overlooking and consequent loss of privacy than from the access point onto the proposed roof terrace/balcony.

If this standard cannot be met, sensitively designed screening may be acceptable, following an assessment of its impact upon neighbouring amenity.

(ii) Balconies and terraces should be designed to receive reasonable levels of sunlight and daylight.

3.16 In addition to issues of privacy, the use of roof terraces and/or balconies may also cause harm to the amenities of neighbouring occupiers as a result of noise and disturbance. Due to this the council may seek for balconies and terraces to be no bigger than 15 square metres to reduce noise and disturbance to neighbours.

3 Housing Standards

4 Design and Conservation

Conservation Area Guidelines

4.1 Most of the borough's built fabric dates from the extensive building programmes in the nineteenth and early twentieth centuries. Hammersmith and Fulham has maintained a much-valued built heritage, much of which falls within the Borough's 44 designated conservation areas.

4.2 Of the borough's residential areas those that were laid out to a consistent design and are of high architectural quality are also included in the borough's conservation areas. In many of these areas, the street provides a sense of scale and the setting for the consistent terraces of uniform architectural design.

4.3 The town centres at Hammersmith, Fulham and Shepherds Bush, have developed from the earliest patterns of settlement, and now have their own character and sense of place. Their architectural and historic quality is reflected in their conservation area designations. In recognition of the importance of these areas in the sustainable regeneration of the borough, it is essential that development is encouraged which is mindful of the areas' historic form and which is of an appropriate high quality architectural design to complement the existing character and ensure the long term vitality and viability of these centres.

4.4 The current land use structure of Hammersmith and Fulham with its three town centres, local shopping parades, residential areas, open spaces, riverside and industrial/commercial areas is the main generator of the Boroughs rich and varied character.

4.5 The varied character of Hammersmith's riverside is reflected both in the Mall Conservation Area including Upper and Lower mall, and in the contrasting old industrial areas such as the Sands End Conservation Area. The River Thames is the main topographical feature in the Borough, defining its southern boundary. It contributes to the character and development patterns of Hammersmith and Fulham in many ways . There is a strong relationship between the river, the river edge, landward development and open spaces within the borough. The riverside in Hammersmith and Fulham has seen many changes over the centuries, and the last thirty years are no exception. Several key sites have been subject of major development proposals.

4 Design and Conservation

Policy Context - Conservation Areas

National Policy

The Government's overarching aim is that the historic environment and its heritage assets should be conserved in a manner appropriate to their significance and enjoyed for the quality of life they bring to this and future generations. Section 12 of the NPPF is titled 'Conserving and enhancing the historic environment' and condenses the former PPS5. However, it maintains the essence of the PPS in upholding the general policy that heritage assets should be "sustained" and "enhanced" for the benefits they bring to the community.

Planning (Listed Buildings and Conservation Areas) Act 1990

Section 69 of the Planning (Listed Buildings and Conservation Areas) Act 1990 states:

"Every local planning authority shall from time to time determine which parts of their area are areas of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance, and shall designate those areas as conservation areas."

Designation introduces a general control over the demolition of unlisted buildings and provides the basis for policies designed to preserve and enhance all the aspects of character and appearance that detract/contribute to an area's special interest.

Under Section 71 of the Act, once an area has been designated:

"It shall be the duty of a local planning authority from time to time to formulate and publish proposals for the preservation and enhancement of any parts of their area which are conservation areas."

London Plan

The London Plan policy 7.8 on heritage assets includes the following:

- London's historic environment, including natural landscapes, conservation areas, heritage assets, World Heritage sites, Scheduled Ancient Monuments and memorials should be identified, preserved and restored.
- Development should preserve, refurbish and incorporate heritage assets where appropriate
- New development in the setting of heritage assets, and conservation areas should be sympathetic to their form, scale, materials and architectural detail.

Local Plan

Local Plan policy DC1 states, amongst other things, that all development within the borough should create a high quality urban environment that respects and enhances its townscape context and heritage assets. There should be an approach to accessible and inclusive urban design that considers how good design, quality public realm, landscaping and land use can be integrated to help regenerate places.

Local Plan policy DC8 Heritage and Conservation which states, amongst other things, that "the council will aim to protect, restore or enhance the quality, character, appearance and setting of the borough's conservation areas and its historic environment, including listed buildings, historic parks and gardens, buildings and artefacts of local importance and interest, archaeological priority areas and the scheduled ancient monument".

Character Profiles

The council is producing a Conservation Area Character Profile for each conservation area. The "profile" is an appraisal which aims to give a clear assessment of the special interest, character, and appearance which justified the designation of the area as a Conservation Area. It also identifies key components that define the character or those which affect it, introduces relevant background material and suggests design guidelines to deal with each one. Some design guidelines are generic and these are reproduced here to aid all concerned in their efforts to preserve or enhance the character and appearance of all conservation areas in the Borough.

The profiles and these design guidelines support the council's statutory Local Development Framework which sets out the planning policy framework for the development of the Borough and development control decisions.

The Borough has 44 conservation areas with the first being designated in 1971. These are reviewed on a regular basis. All published and approved profiles are available on the council's web site. Profiles for each of the remaining conservation areas are to be produced as part of the council's ongoing work programme.

Key Principles

Key Principle - CAG1

Land Use in Conservation Areas

The mixture of uses within a conservation area is a component of character and often reinforces the role and quality of its individual buildings and local townscape. The impact of changing the balance of uses on that character must be carefully considered. Where new uses are proposed, they should be configured and accommodated in a manner that is consistent with the character of the conservation area and its architectural form, scale and features.

4.6 The experience of the particular mix of uses within a historic area helps determine its character. This often reinforces the role and quality of its individual buildings and local townscape. The balance of uses within a conservation area is, therefore, important in defining its character, particularly if they reflect the historic development of the area. Conservation Area designation is seen as the means of recognising the importance of such factors and in ensuring that appropriate policies are adopted to address the preservation or enhancement of such character by maintaining the balance of uses where it exists. Within Regeneration Areas and where significant areas of new townscape are proposed, the impact of introducing new uses will need to be carefully considered in conjunction with other strategic objectives.

Key Principle - CAG2

Urban Design in Conservation Areas

New development should contribute positively to the townscape and visual quality of the area and achieve a harmonious relationship with its neighbours to preserve or enhance the character and appearance of the conservation area. A successful design will take account of the characteristics of setting, urban grain, key townscape features, architectural details, landscape features, views, landmarks of the conservation area.

4 Design and Conservation

4.7 New development will be considered on the basis of the following urban design characteristics:

Setting: The setting of the conservation area is determined by its surroundings within which the area is experienced and describes its relationship in particular to the spatial, visual, historic and topographic context. The setting may contain buildings or features that have a positive, neutral or negative impact on the significance of a conservation area. Where necessary, applicants should describe the impact of their proposals on the setting of a conservation area in accordance with the method outlined in Historic England's Good Practice Advice Note: The Setting of Heritage Assets (GPA 3) (2015).

Urban Grain: The urban grain of an area is composed of the plot layout, form and scale of buildings, the public realm and street pattern that define the distinct character of the conservation area and give clues to its historic development.

Key Townscape Features: All new development should respect the key townscape features, such as height and massing, building types and density, that define the sense of place. Proposed works within consistent groups of buildings such as terraces or set piece developments should respect the established homogeneity of the townscape.

Architectural Detail: The scale, proportion, alignment, style and use of features and materials must be carefully conceived to achieve high quality buildings that form a harmonious relationship with their neighbours.

Landscape Features: All new development should respect terrain and landscape features of the site and surroundings and respect their relationship to the built context.

Views: Significant views in and out of a conservation area and within it that can be appreciated from the street should be protected and opportunities to enhance existing views and shape or define new ones should be sought when considering new development.

Landmarks: Established landmarks, such as a church, theatre, town hall, rail station, an imposing office or mansion block or industrial building, should be retained as visual focal points where they make a positive contribution to defining and identifying the character of the conservation area.

4.8 (1)

4.9 The council will require applications for planning permission, whether outline or full, to be in sufficient detail for a judgement to be made in relation to the impact of the proposal on the character and appearance of the adjoining buildings and street scene and the conservation area as a whole. For this reason an outline application without any details is unlikely to provide sufficient information. The council has statutory powers to ask for additional details within one month of the lodging of a planning application, if these are necessary to enable it to make a decision.

Key Principle - CAG3

New Development in Conservation Areas

New buildings, extensions and alterations should be sympathetic to the architectural character of the built context and should not have a harmful impact on the character and appearance of the conservation area. Characteristics such as building heights, building lines, roof forms, rear and side additions, front gardens and boundary treatment, lightwells, materials, windows and building features as well as disabled access measures should be considered in this context.

1 Further guidance can be found in 'Building in Context: New Development in Historic Areas', CABE 2001.

4.10 The following building characteristics are relevant when planning new development:

Building Height: Any new development should respect the general townscape and prevailing height of buildings in each area where there is general consistency in height and scale. Where this is not the case, a townscape analysis would be required that supports the judgement about appropriate building heights on a site.

Building Line: The relationship between the frontages of buildings and the street space they are enclosing is an important townscape characteristic. New development should respect the dominant building line and the general rhythm of the facades within a street. The building line of the rear of buildings, often with a repetitive pattern of original subordinately designed rear extensions, can also be important in its relationship with gardens. It should be respected by the careful design of any proposed rear extensions.

Roof Extensions: Front roof extensions are likely to interrupt continuous parapet and eave lines in the townscape and are generally unacceptable for typical buildings styles within the Borough. Rear roof extensions should be sympathetic and special attention should be paid to their design where they are visible from the street and from surrounding properties. Alterations to the ridge height and the front roof slope are considered to be unacceptable where they harm the uniformity of a terrace or the proportions of a building. The use or reinstatement of original rainwater goods, decorative detail and materials including tiling patterns will be expected where appropriate. The demolition of original chimney stacks that are a significant feature in the roofline and silhouette of a building or terrace is considered to be a material alteration to the roofscape and shape of a dwelling house. Their removal may require planning permission and will be resisted. Similarly, original chimney pots should be retained wherever possible.

Hip to Gable Roof Extensions: Hip to gable roof extensions can undermine the symmetry of groups of properties or terraces. Where hipped roofs form part of the pattern of original development in an area their loss will be resisted.

Extensions: Extensions should never dominate the main building and should meet the policies in the section of the SPD on Housing Quality with regard to the provision of garden space, its proportions and quality. The size of rear and side extensions should have regard to existing building patterns within a conservation area and respect the symmetry of original additions in terraces. The design and materials of such extensions should integrate successfully with the host building and its neighbours.

Front Gardens: Front gardens define the edge of the public realm and form an important element of the character of most of the Borough's streets and terraces. Planted front gardens improve privacy, the appearance of properties and their relationship to the street, amenity value and local biodiversity. The retention and maintenance of planted front gardens will be encouraged and their destruction in order to create vehicular crossovers, access and hard standings will be resisted. Further guidance can be found in the Sustainable Drainage Systems, Biodiversity and Transport sections of this SPD.

Boundary Treatment: Traditional front boundaries are important in defining the character of a street and visually unite street frontages of buildings. Alterations to or removals of front boundaries that interrupt the sense of enclosure and rhythm in the relationship between private and public space will be resisted, and where missing, front boundaries should be replaced to their original design. Boundaries of the 19th & early 20th Century can vary from the earlier style of metal railings on a stone plinth with matching gates, to the later style of low brick walls with stone copings (simple flat blocks or more distinctively moulded) surmounted by metal railings or panels, and matching gates all flanked by stone or terracotta capped piers, and hedges, or a combination of these. In the majority of cases black or dark green is the most appropriate colour to paint metal railings and gates, but wherever possible the original colour scheme should be investigated. Invisible Green⁽²⁾ is often used. Visible side and rear

2 (Dulux Colour Reference 8406 G78Y)

4 Design and Conservation

boundary treatments can be of equal visual importance and their original design should be retained or reinstated. Any new structure over one metre in height on a boundary adjoining the highway and over two metres in height on a boundary at the rear of properties would require planning permission. Where the installation of bin, cycle or meter enclosures in gardens is considered to be acceptable, their design should be in proportion to the height of the boundary treatment and the size of the garden, and the enclosures should not be accessed through new openings in boundary walls, hedges or railings.

Lightwells: Where lightwells are considered to be appropriate they must be sensitively designed and proportioned to accord with the Basements and Lightwells chapter of in this SPD. The creation of lightwells by the excavation of all or part of the front garden of a residential property to provide windows to basements requires planning permission, as does the enlargement of an existing lightwell. The loss of a substantial part of front gardens that form an integral part of the character of the terrace and street will be resisted.

Basement excavation: More detailed guidance can be found in the Local Plan, Policy DC 11. The excavation of basements beneath existing or proposed buildings will generally be limited to one storey in depth beneath the original lowest floor level. Exceptions may be acceptable on larger redevelopment sites. The excavation of basement accommodation beneath front and side gardens will not normally be acceptable in accordance with Local Plan, Policy DC11. The excavation of basements beneath rear gardens will be limited to the criteria set out in the Local Plan, Policy DC 11. The excavation of basements beneath existing or proposed outbuildings will be resisted in order to preserve the spatial hierarchy between main building and outbuilding.

Rear and side gardens: Rear and side gardens are an important element of the character of most of the borough's Conservation Areas and contribute to amenity value, local biodiversity, privacy and sustainable drainage. Views across rear and side gardens are often important elements in the townscape, providing relief in the streetscene and glimpses of planting. The retention and maintenance of rear and side gardens will be encouraged and their significant erosion to create extensions, basements, lightwells or outbuildings will be resisted. The retention of trees and soft landscaping in rear or side gardens and the provision of new planting will be encouraged.

Outbuildings: Any outbuilding should be clearly subservient in height, volume and purpose to the original property, they should relate to size of the garden, should not create a terracing effect at the rear of existing properties and should comprise of only one storey. Their materials should complement their garden setting; traditionally domestic outbuildings have been constructed of brick or timber rather than render, metal or ceramic tiles. The excavation of basements beneath existing or proposed outbuildings or creation of lightwells to serve proposed basements will be resisted in order to preserve the spatial hierarchy between main building and outbuilding.

Continuity and Historic Names: The retention of historic names of buildings and sites will be encouraged. The retention of historic signage, particularly in relation to public houses will also be encouraged. Historic names and associations will be considered when naming any new developments. The use of historic information plaques on existing buildings and in new developments will be encouraged. The Hammersmith and Fulham Historic Buildings Group has worked closely with the Council to develop a high quality model design for historic information plaques.

Brickwork and Stonework, Painting, Render and Cladding: External brick or stone walls (including pilasters to shop surrounds) should be retained in their original condition and should not be painted, rendered or clad in any material. Existing brick or stone elevations including chimney stacks should be properly maintained and appropriate repointing undertaken where necessary (usually with lime based mortar in a flush finish). Properties that have original unpainted stucco rendering, or have stucco mouldings, should preferably be left in their original state and specialist advice should be sought where re-rendering or repairs are necessary. Where render or stucco is painted, it should be repainted an appropriate matt colour (or colours) i.e. white, pale or pastel shades rather than vivid colours. Glazed

bricks or tiles and terracotta tiles or decorative panels should not be painted. Planning permission may be needed for changes to original facades and consultation with the Borough's conservation officer should be sought.

Windows and Original Features: Original architectural features such as timber sash windows, timber or metal casement windows, panelled doors, decorative stucco, moulded window surrounds and door cases, and historic shopfronts should be maintained and repaired wherever possible. Where renewal is unavoidable, owners are encouraged to reinstate these with exact replicas in the original style, detailing and materials. New windows should be designed with matching frame materials and profiles, pattern of glazing bars and glazing types. The type of glazing including secondary glazing options and design details should be carefully considered on a case by case basis. Planning permission may be needed for replacement windows and advice from the Borough's conservation officer should be sought. Owners of properties with unsuitable replacement windows, including PVC (plastic) windows, will be encouraged to change them for those of a more appropriate design and materials to match the originals when an opportunity arises.

Disabled Access: Applications for development affecting heritage assets should achieve accessible and inclusive design wherever possible and practicable, for example, level access. The Council supports the dignified and easy access for disabled people to and within historic buildings and historic public spaces. Suitable access for disabled people, which does not compromise a building's or areas special interest, can normally be achieved if treated as part of an integrated review of access requirements for all visitors or users, and if a flexible and pragmatic approach is taken. The Historic England publication – Easy Access to Historic Buildings (2015) provides useful guidance.

Key Principle - CAG4

Historic Shopfronts in Conservation Areas

The removal of historic shopfronts will be resisted and where they have been fully or partially removed, restoration will be encouraged. New shopfronts, including signage, lighting and other external installations, should incorporate high quality designs and materials which are appropriate to the architectural character of the building.

4.11 Proposed works to shopfronts will be considered with regard to their characteristic setting and features:

Shopfronts: New shopfronts and alterations should be designed to achieve a satisfactory visual relationship between the frontage and the rest of the building. Shopfronts spanning more than one original shop unit should not disrupt the vertical emphasis by the removal of intermediate pilasters and corbel brackets that originally divided the individual shop units.

Shopping Parades: A group of shops within a terrace normally has a unified appearance within well designed surrounds common to each shop and with related shopfront designs. The replacement of shopfronts with individual features and surrounds that are not common to the group would harm the unified appearance of the terrace. The retention, repair or restoration of original shop surrounds and frontages therefore is of high importance to the character and appearance of historic buildings and conservation areas.

Shop Fascias, Signage and Lighting: Fascia panels and shop signs should be integrated into the design of a shopfront, respect architectural details, use appropriate materials of high quality and should be located below the perceived floor level of the first floor. Internally illuminated box fascias and signs are considered to be inappropriate for shops within conservation areas.

4 Design and Conservation

Shop Security Shutters and Canopies: Security grilles, where absolutely necessary, should consist of an open mesh to avoid dead frontages and be located internally. Shutter boxes should always be hidden from external views. Canopies should be traditionally designed and integrated into the shopfront.

4.12 More detailed guidance can be found in the Local Plan, Policy DC5, and in the Shopfronts chapter of this SPD.

Key Principle - CAG5

External Installations in Conservation Areas

Any external installations, such as solar/PV panels, satellite dishes and antennas, must be integrated into the design of a building by installing these within the envelope of the building or in a discrete manner in the least intrusive locations to minimise their visual impact both in ground level and high level views. Such installations within a conservation area will require planning permission and need careful consideration.

4.13 The proposed details of the installation of the following external additions must be considered:

Energy efficiency measures: Installation of energy efficiency technologies such as micro-generation equipment must be sensitively designed and situated to limit their visual impact on heritage assets. Internal alterations to increase energy efficiency, such as secondary glazing or heat pumps that require the installation of external grilles, should be designed to be sympathetic to the exterior character.

Satellite Dishes: Satellite dishes will not be permitted where they would be visually obtrusive and where alternative locations are possible.

Other Additions: External impedimenta such as original rainwater goods must be replaced in their original form and material. In some cases, powder coated aluminium may be acceptable but the use of PVC (plastic) is considered visually inappropriate. The installation of small size equipment such as alarm and antenna boxes and cameras should be limited and sited away from important architectural details and screened appropriately. The routing of cables should be internal – where this is not possible, cables routes should be in the least prominent locations with a colour finish to match the background.

Key Principle - CAG6

Open Spaces, Trees and Streets in Conservation Areas

Open spaces, trees and streets make a significant contribution to the character and appearance of conservation areas. It is important that any proposed changes preserve the character and reinforce local distinctiveness of the area.

4.14 Proposals will be assessed with regard to the following considerations:

Open Spaces: Public and private open spaces within a conservation area have a major visual and amenity value and impact upon the character of a otherwise built up area. Many open spaces within the Borough's conservation areas are identified within the Council's Local Plan as Nature Conservation Areas or Metropolitan Open Spaces. Any development should be designed to ensure it is harmonious with the open space context, and views within and from the outside of open spaces should be given special consideration. Where sports pitches, playgrounds and associated lighting are appropriate and satisfy these policies, they must be carefully integrated within the original layout and landscape to minimise their visual intrusion and enhance their surroundings.

Design and Conservation 4

Trees: Mature planting and trees are an important characteristic of historic areas and most trees in a conservation area, including those in rear gardens, are protected [see the Town and Country Planning [Trees] Regulations 2012]. Owners are urged to look after trees on their land and plant new ones, and the Council will continue to re-instate and plant new street trees where appropriate, in order to ensure a continuing stock of mature trees for future generations and to provide an opportunity for biodiversity. Trees and shrub planting along boundaries of properties is a common characteristic in conservation areas, and their retention and maintenance will be encouraged.

Streets: Roads, pavements and public spaces should form a neutral setting for buildings within the conservation area and all work should be carried out in accordance with the Council's street design guide "Street Smart". Original kerb stones and historic paving should be kept and repaired. Where this is not possible, high quality natural materials such as York stone and granite setts can greatly add to the visual interest of an area, however, surfaces should be visually subordinate within the townscape, providing a coherent character throughout the conservation area. Any hard and soft landscaping, paving, road surfaces or footpaths should be designed to contribute where necessary to managing surface water run-off in accordance with the Flood Risk Mitigation and Sustainable Drainage section of this SPD.

Street Furniture: The Council is committed to improving the streetscene. The aim is to promote high quality design and to eliminate visual clutter by removing redundant items of street furniture. Historic cast iron bollards, railings and cast iron or enamel street name plates add to the visual character of an area and should be retained and repaired or, if appropriate, replicas installed. New lighting columns and lanterns should be designed in keeping with the local character and context within the conservation area. Telephone kiosks and other telecommunication facilities should be of a high quality design and materials and should not generate visual clutter in the streetscene through their appearance or siting, particular care should be paid to the setting of Listed Buildings and Buildings of Merit.

4 Design and Conservation

Basements and Lightwells

4.15 In London, many of the larger Georgian terrace houses had separate front access to the basement to allow for coal, waste and service matters to be dealt with separately from the main entrance to the house. In smaller houses basement access would be to the coal cellars which were to be found under the pavements. However, later medium sized and smaller London houses had no separate access and coal and bins were moved through the same main entrance. Towards the end of the 19th Century (after 1870) all medium sized houses and many smaller houses were built with a front garden (even those with basements). Gardens were regarded as adding status and, if kept in good order, improving privacy and the appearance of the house. Iron railings (most removed during the Second World War), sometimes on a low brick wall, often enclosed the gardens. By the end of the 19th Century, almost all new houses had a front garden, or at least a forecourt, [a paved stretch of ground of the depth of a bay window].

4.16 These front gardens now form the character of most of the Borough's streets and terraces, and when planted, provide a welcome greening of an otherwise hard urban environment. Rear landscaped gardens can also contribute to the street scene, particularly where there are important gaps between terraces and a general open aspect in which trees and large shrubs in rear gardens are visible. The street scene can be enhanced by borrowing from the landscape in these private rear spaces. The value of these spaces for their planting and potential tree planting is great, not only for aesthetic reasons but also for biodiversity and habitats and dealing with surface water run-off.

Policy Context - Basements and Lightwells

National policy

The NPPF encourages good design. It warns that design which is inappropriate in its context, or which fails to take the opportunities available for improving the character and quality of an area and the way it functions should not be accepted. It states that high quality and inclusive design should be the aim of all those involved in the development process. Planning authorities are encouraged to prepare robust policies on design and access. A key objective of these policies is to ensure that developments respond to their local context and create or reinforce local distinctiveness.

London Plan

The London Plan promotes good design, for example see **policy 7.6 Architecture** and others concerned with London's Living Places and Spaces. It acknowledges that the quality and function of neighbourhoods and places, and local character, contribute to making London a special place and improve the quality of life.

Local Plan

The council's policies for the control of development and the improvement of the environment are set out in its Local Plan.

The council's Local Plan includes **policy DC4: Alterations and Extensions**. This states, amongst other things, that the council will require a high standard of design in all alterations and extensions to existing buildings. These should be compatible with the scale and character of existing development, their neighbours and their setting. In addition, policy DC11 provides guidance on basement accommodation and lightwells.

The council's Conservation Area Character Profiles generally discourage the excavation of front gardens. The Guidelines state :

"The creation of lightwells by the excavation of all or part of the front garden of a residential property to provide windows to basements to increase the light to basement rooms requires planning permission, as does the enlargement of an existing lightwell. Where there is no tradition of a lightwell in a particular property or street the introduction of an over-large, visible and inappropriately designed lightwell could be harmful to the appearance of an area. This has a negative impact and will not normally be permitted where the lightwell would take up more than 50% of the front garden or would result in the loss of a substantial part of any planted area of the front gardens that forms an integral part of the design of the street or terrace."

Assessment of Proposals for Lightwells and Basement Excavation

4.17 The council will be bringing an Article 4 Direction to remove permitted development rights for basement development in April 2018. Applicants will be required to submit planning applications for any basement development, lightwells or any other development below the dwellinghouse or curtilage. The Local Plan and following guidance will be used to assess any applications (<https://www.lbhf.gov.uk/planning/planning-policy/consultation-article-4-directions>).

4.18 Where lightwells already exist, and are to be enlarged, planning permission will also be required for that enlargement. Some schemes for excavation and lightwells at the side and rear of properties may not require planning permission. Applicants are advised to discuss proposals for such work at an early stage with the Council's Planning Division.

4 Design and Conservation

4.19 The introduction of an overly large, visible and inappropriately designed lightwell could be harmful to the appearance and architectural integrity of the property, the street scene, and the area generally. For example, the scale of a property can be increased, and the relationship of the property to its front garden threshold space and the street can be eroded, or the softness given by a planted front garden can be lost with consequent damage to the street scene. The addition of further protective railings can add unnecessary clutter to the appearance of the street scene.

4.20 In addition, there are parts of the Borough that are designated as Archaeological Priority areas. Where excavation is required in these areas the council will take into account the Heritage Conservation policies in the Local Plan. The requirement to fully understand any impact on archaeology is normally expressed as a condition to any planning permission.

Assessment of Lightwells

Key Principle - BL1 Any application for a lightwell will be treated on its individual planning merits, taking into account local circumstances, impact and the proposed size of the excavated area.

Key Principle - BL1 The following key points should be considered when creating a lightwell:

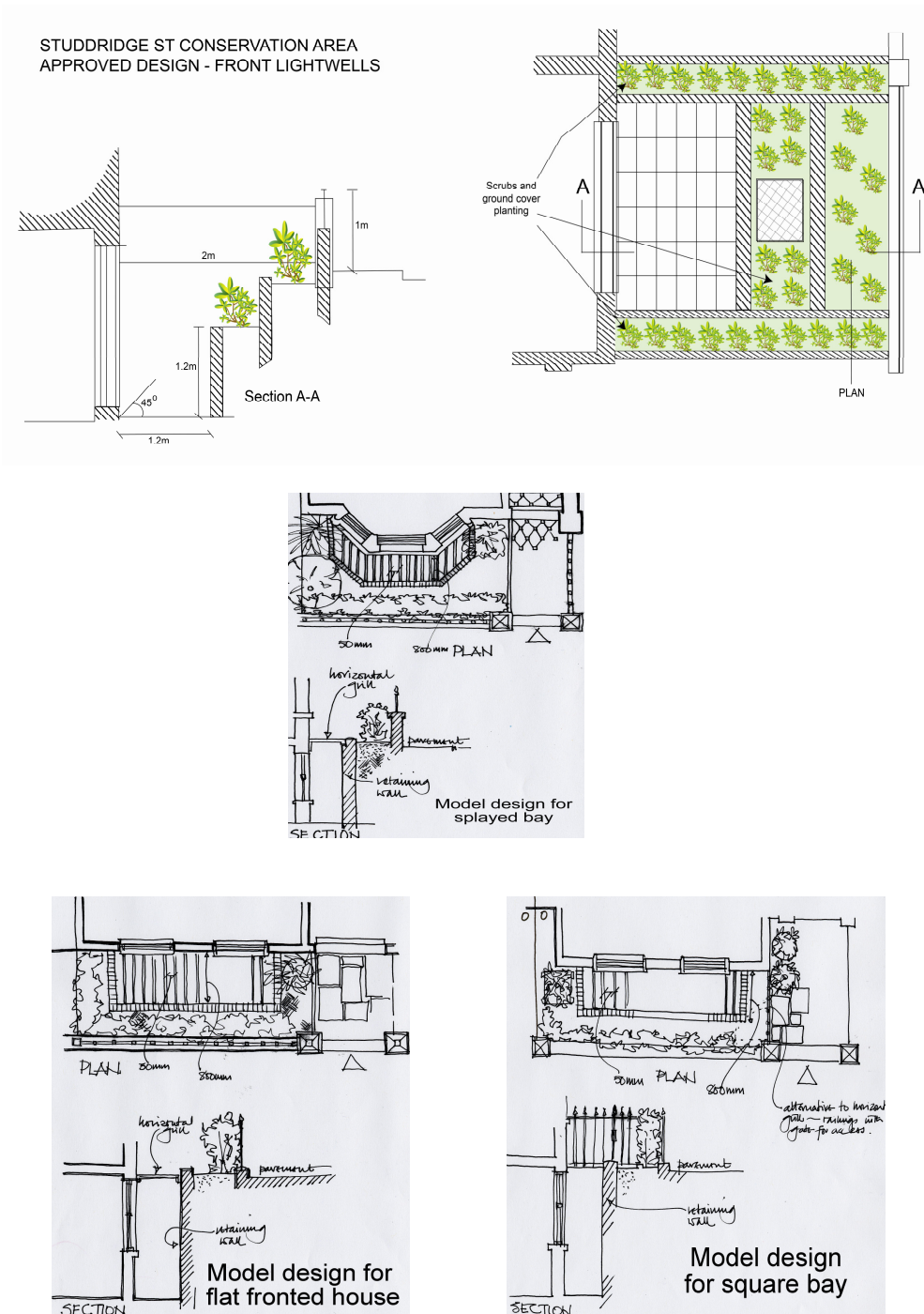
Key Principle - BL1

- Proposals for excavation and a lightwell where the whole of the front or rear garden would be lost would normally be refused permission.
- Front lightwells should be designed in accordance with the model designs for lightwells in figure BL1.
- Rear lightwells should not be excessive in size and should not either on its own or in combination with a basement excavation result in the loss of more than 50% of the rear garden area in accordance with Local Plan Policy DC11.
- Where they are not part of the original design, proposals to insert stairs into the front lightwell would normally be resisted.
- Where a basement is being excavated to form additional living space, lightwells may be formed in the rear and/or side garden, where one exists.

4.21 There will be instances where excavation and the construction of a lightwell could be detrimental to the character of a building or the street scene and could be refused permission. Examples of such cases would be where front gardens or forecourts (both residential and commercial) are particularly small and excavation and the creation of a lightwell would result in the loss of the entire garden, or where a large lightwell would be clearly visible from public areas. Figure BL1 below provides examples of model lightwell designs for different types of property. Where lightwells exist already in a particular street or terrace, such as on the Peterborough Estate in the Studdridge Street Conservation Area, and where a different model has already become established, further lightwells which match the predominant design may be considered acceptable.

Figure - BL1

4.22 Recommended lightwells are shown in the drawings on the next page, these show a plan and section from front to back, for each type of property, together with dimensions. The examples have been designed to comply with building regulations requirements for means of escape in case of fire, if the only possible means of escape is through the front lightwell area.



4 Design and Conservation

4.23 Rear gardens are important for providing the space and environment within which flora and fauna have the opportunity to thrive and, therefore, sufficient space should be left for trees and shrubs to grow. The presence of trees and shrubs in rear gardens provides a green foil to the surrounding development and can enhance the sense of privacy, especially in densely built up areas.

4.24 Providing access to the basement via the front lightwell increases the size of the lightwell and erodes the remaining area available for planting. Stairs and railings would also give a cluttered appearance to the front garden area which often provides a soft landscaped setting for the property and the street. Such proposals would detract from the appearance of the front elevation of the house and the character of the street scene.

4.25 Ideally, where a basement is being excavated to form additional living space, lightwells should be formed in the rear and/or side garden, where one exists. Such a location would almost always be more appropriate. There would be scope at the rear for the provision of light and air to any new basement room, and there would also be the opportunity to create links with any rear garden.

Key Principle - BL2

Lightwells and basement excavation relating to listed buildings and lightwells in and conservation areas

In the case of a listed building whose special interest would be harmed by the construction of a lightwell, such a development would almost always be unacceptable unless outweighed by public benefits.

Proposals for lightwells or basement excavation relating to listed buildings or their curtilage should be informed by an assessment of the significance of the designated heritage asset and the impact of the proposals on that significance, paying special attention to the type, period, character and setting of the listed building; its historic fabric, plan form, volume, floor to ceiling heights; and original spatial hierarchy within both the listed building and its curtilage.

Details of the method of construction and excavation; details of any temporary internal or external works required to facilitate the construction and excavation process such as the removal of spoil; and details of measures to protect the existing fabric during construction and excavation will be required with any application relating to a listed building or a building within its curtilage.

In some parts of some conservation areas, even the model lightwell designs included in Figure BL1 may be harmful, for example where the front garden is clearly visible from the street, or where there is no front boundary enclosure.

4.26 Some heritage assets will be extremely sensitive to changes in level at the threshold of a building especially where the forecourt or front garden space provides the setting for the building or terrace and contributes to the significance of the heritage asset.

4.27 The significance of listed buildings can be adversely affected by the construction of lightwells or basement excavation, therefore careful consideration is required in relation to impact of such proposals on both the internal and external character and appearance of the listed building and on the spatial hierarchy within the listed building and its curtilage. Some designated heritage asset types such as dwelling houses built with a clear hierarchy of floors and a cellular plan form can be particularly vulnerable to harmful change from proposals for lightwells and basement excavation. It will be important to consider not only the impact of the permanent alterations, but also the impact of any temporary works that will be required to facilitate the proposed works. Listed buildings and buildings in

conservation areas can be sensitive to proposals for lightwells or basement excavation, especially where the forecourt or front garden space provides the setting for the building or terrace and contributes to the significance of the heritage asset.

Key Principle - BL3

Front lightwells

Where a new front lightwell is acceptable in policy, it should be as discreet as possible, and allow the scale, character and appearance of the property, street or terrace to remain largely unchanged. The design of any basement elevation, in its form and fenestration [and in particular the material, opening style and subdivision of any fenestration], should relate to the design of the ground floor elevation.

The following key points should be considered when creating a front lightwell:

- The excavation should retain a significant amount of accessible and usable planting area at ground level.
- Fences, glazed screens or vertical railings to surround the lightwell should be avoided, as they draw attention to the change, and would look cluttered especially if there are differing styles. It would be acceptable however, to put a railing from the front to back adjacent to the garden path in order to give protection.
- In the case of splay bay and square bay windows, the lightwell should follow the shape of the bay window on the ground floor.
- In the case of a flat fronted property the excavation should be no wider than the outer edge of the window or windows in the ground floor elevation.
- All excavations should not exceed 800mm from front to back
- A horizontal metal grille flush with the surface of the garden should be used to achieve such protection over the excavation
- Where a lightwell is used as a means of escape, a ladder will also need to be provided to affect the escape arrangements from the basement.

4.28 Many houses in Hammersmith and Fulham have a splayed bay window on the front elevation (a result of the late Victorian love of fresh air and extra space); others have a square bay, while fewer have a flat elevation. The majority of terraced houses have small front gardens where the formation of a lightwell would have the greatest impact. These guidelines are predominantly aimed at these small gardens. The guidelines may only be relaxed where the proposals relate to larger front gardens (i.e. more than 6 metres when measured from the main front wall). All excavations should not exceed 800mm from front to back, except on the Peterborough Estate where a more generous model design incorporating a secondary planter in the lightwell has become established.

4.29 The Council is not seeking to prevent the use of fences and railings on the front property boundary, or along the path leading to the front door. The Building Regulations require that in order to prevent any one falling into a lightwell where it is deeper than 600mm, the opening should be protected by a guard. In order to avoid a cluttered appearance in the front of a property a horizontal metal grille flush with the surface of the garden should be used to achieve such protection over the excavation. The need for a grille can be avoided if a vertical railing is erected from the front entrance gate to the front door.

4.30 If the lightwell is not used as a means of escape, or required for ventilation, other traditional measures such as glass blocks could be used. These features should be included in any planning application. Any proposal should have sufficient space left in the front garden to provide the opportunity for planting, and in the case of small gardens, there should be at least sufficient space left for a hedge.

4 Design and Conservation

4.31 Any planning permission will have conditions attached relating to the grilles, materials, windows, tree protection measures for any adjacent trees and a requirement to build the proposals in their entirety. The removal of permitted development rights for railings may also be conditioned.

Buildings of Merit

4.32 The borough has an established local register of Buildings of Merit which has been drawn up and maintained in close collaboration with local amenity groups ⁽³⁾. The list gives a clear indication of those buildings which are valued by the local authority and local community, and a better understanding of the locally important heritage assets and their contribution to the character and distinctiveness of each local area. The buildings on the list are now widely recognised as local heritage assets in the planning process.

4.33 The borough's Buildings of Merit are important for the contribution they make to the local area, reinforcing local historic and architectural distinctiveness. They are also important in the preservation and enhancement of local character and appearance of areas.

Policy Context - Buildings of Merit

National Policy

The Government's overarching aim regarding the historic environment and its heritage assets is that they should be conserved in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations. Section 12 of the NPPF is entitled 'Conserving and enhancing the historic environment' and condenses the former PPS5. However, it maintains the spirit of the PPS in upholding the general policy that heritage assets should be "sustained" and "enhanced" for the benefits they bring to the community. There is a clear direction to local authorities in paragraph 126 that these general aspirations should be linked into a positive strategy for conservation within local plans.

London Plan

The London Plan recognises that London's built and landscape heritage provides a depth of character that has immeasurable benefit to the city's economy, culture and quality of life. Crucial to the preservation of this character is the careful protection and adaptive re-use of heritage buildings and their settings. The Plan contains a policy on heritage assets (see Policy 7.8).

Local policy

Local Plan Policy Built Environment DC1 states that all development within the borough should create a high quality urban environment that respects and enhances its townscape context and heritage assets.

The Council's Local Plan includes policy DC8 Heritage and Conservation. This states amongst other things that: "The council will aim to protect, restore or enhance the quality, and character, appearance and setting of the borough's conservation areas and its historic environment, including listed buildings, historic parks and gardens, buildings and artefacts of local importance and interest, archaeological priority areas and the scheduled ancient monument".

3 (see list published separately on the council's website)

4 Design and Conservation

Key Principles

Key Principle - BM1

Designation of Buildings of Merit

Given the importance of non-designated heritage assets to the local townscape of the Borough, it is considered that the opportunity to add to, or in exceptional cases remove buildings from the Local Register, is available, and such additions may be put forward from time to time, in consultation with the relevant amenity societies. Furthermore the council may recommend that particular buildings on the Local Register should be added to the Statutory National List of Buildings of Special Architectural or Historic Interest by the Secretary of State. A regular review and update of the local register will be carried out to ensure it remains relevant as a record of the boroughs locally important historic environment.

4.34 Historic England suggest that similar selection criteria to that currently used for national designation would be appropriate for local listing. The criteria for adding new buildings to the list would include:

- Age – where the age of a building may be important in the local context
- Rarity – maybe rare in the borough but not nationally so not fulfilling national criteria
- Aesthetic value – where the design is important in the local context
- Group value – where the grouping has a clear design or historic relationship
- Evidential value – where the significance of the asset is supported by written record
- Historic association – would include association with important local persons and events
- Archaeological interest – where the asset is locally significant
- Designed landscape – locally important designed landscapes and gardens
- Landmark status – an asset with strong historical associations or particularly striking design value
- Social and communal value – relating to places perceived as a source of local identity

Key Principle - BM2

Proposals affecting buildings of merit

Development will not be permitted if it would result in the demolition, loss or harmful alteration to buildings, structures and artifacts that are of local townscape, architectural or historic interest, including all buildings identified on the council's Register of Buildings of Merit unless:

1. (a) The building or structure is no longer capable of beneficial use, and its fabric is beyond repair; or

(b) The proposed development would outweigh the loss or harm to the significance of the non-designated heritage asset; and

(c) The proposed development cannot practicably be adapted to retain any historic interest that the building or structure possesses; and

(d) The existing building or structure has been fully recorded; and

2. In the case of artifacts, they cannot practicably be retained in situ or, failing that, retained for re-use elsewhere within the site.

4.35 All applications relating to Buildings of Merit or their setting should include a description of the significance of the heritage asset. The level of detail in the description should be proportionate to the importance of the heritage asset. An assessment of the effect of any proposal on the setting and significance of the Building of Merit should be included with the application. The council will be keen to ensure that any proposals preserve those elements that make a positive contribution to, or better reveal the significance of the Building of Merit.

4.36 The council wishes to encourage the retention of the architectural, townscape and historic character of the borough. There are many buildings in the borough on the Local Register of Buildings of Merit which are of merit and which contribute to the character of the locality because of their townscape value, architectural quality, or historic associations. Most buildings on the register have been selected through external inspection on the basis of their architectural character and/or their contribution to the visual quality of the street scene. However, there may be instances where buildings also have a valuable interior.

4.37 Many terraces, parades and other groups of buildings make an important contribution to the townscape and local distinctiveness of the borough which is greater than the individual importance of each building. Several of these groups have been identified as Buildings of Merit. Every effort should be made to protect these facades of terraces, parades or groups of buildings, especially the rooflines and any architectural detailing which adds to their character.

4.38 Both within and outside conservation areas, proposals for demolition or alteration should have particular regard to the effect of that proposal if the building is part of a terrace, parade or group because the consequences of demolition or unsympathetic alteration could be detrimental to the value of that group.

4.39 Locally important buildings are heritage assets of high local value in terms of townscape, architectural or historic interest, and it is especially important that they shall be retained in any development. Any alterations should only be carried out in a way that respects the scale, character and materials of the building. Within conservation areas, there are statutory controls over the demolition

4 Design and Conservation

of buildings and consent is normally required. Outside conservation areas specific consent for demolition is not normally required. Nevertheless, the council will seek to protect locally important buildings because they contribute to the character and heritage of the borough.

Accessible and Inclusive Design across the borough

4.40 Hammersmith and Fulham is a generally flat borough with few steep inclines. However, many buildings are of older construction and some multi-storey buildings were built without lift access. It is therefore important to improve accessibility in the built environment when development, including new buildings, alterations or extensions and changes of use, takes place.

4.41 The council considers that much of the guidance in the London Plan and the additional guidance in the Housing and Accessible London SPGs is relevant to the local circumstances in H&F and supports the policies in the Local Plan relating to accessible and inclusive development. Therefore where the London Plan policies and accompanying SPG provides more detailed guidance, the council will use it in assessing relevant planning applications. For some types of development more detailed supplementary policy guidance will be considered necessary.

4 Design and Conservation

Policy Context - Design and Access

National policy

Approved Document M of the Building Regulations introduces minimum specifications for wheelchair User Dwellings M4(3). This is subdivided into Wheelchair Adaptable and Accessible Dwellings M4(2) and Wheelchair User Dwellings M4(3), which are fitted out for occupation by a wheelchair user. Approved Document M link for reference: <https://www.gov.uk/government/publications/access-to-and-use-of-buildings-approved-document-m>

The National Planning Practice Guidance states that category M4(3) may only be required for wheelchair user dwellings where the local authority is responsible for allocating or nominating a person to live in that dwelling. M4(3) may therefore only apply to social rented and affordable rented homes, all other wheelchair user dwellings may only be conditioned to meet M4(3) standard.

The National Planning Policy Framework (NPPF 2012) recognises the need for an accessible and inclusive environment, including accessible adaptable general purpose housing and specialised housing as being among the ways that Local Plans can aim to meet the housing needs of older people.

Paragraph 35 of the NPPF states that where practical, the location and design of development should create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, and consider the needs of disabled people to arrive by any modes of transport.

London Plan

London Plan policy 7.2: An Inclusive Environment seeks to ensure that future development requiring planning permission is accessible and inclusive. This policy also outlines the information that should be included with design and access statements submitted with development proposals, including whether relevant best practice standards such as British Standard 8300:2009 have been complied with.

Other relevant London Plan policies include:

- London Plan Policy 3.1 for ensuring equal life chances for all;
- London Plan 3.8: Housing Choice which seeks to ensure that 90% of housing meets building regulation requirement M4(2) and 10% to meet M4(3).
- London Plan Policy 4.5: London's Visitor Infrastructure which seeks inclusive and accessible visitor accommodation, including 10% of hotel bedrooms to be wheelchair accessible; and
- London Plan Policy 2.15: Town Centres which promotes measures to improve accessibility, including Shopmobility schemes in town centres.

Local Plan

Hammersmith and Fulham Council in discharge of its planning function, must engage with public body duties in the Equality Act 2010. One of these duties requires it to take active steps to generally advance equality of opportunity for groups protected by the Equality Act 2010 and to ensure that disabled people in particular are not more disadvantaged than groups who are not disabled, where this might be a consequence of the council's decision or policy applied to a particular development.

The Local Plan seeks accessible and inclusive development and policy DC1 specifically states that “development throughout the borough should be attractive, durable, adaptable and accessible in order to achieve good sustainable and inclusive design.” The Local Plan also includes more specific policies on the need for inclusive and accessible development in relation to different types of development. For example, **Policy H06** of the Local Plan seeks high quality accessible homes in all developments, specifically 90% of housing to meet building regulation requirement M4(2) and 10% to meet M4(3).

Key principles

Key Principle - DA1

Access and inclusive design

Applications for new buildings, changes of use, extensions and other building work should ensure that the building is designed to be accessible and inclusive to all who may use or visit the building.

Drawings submitted for planning approval should show external access features for detailed approval and how in general, internal facilities (including those requiring detailed building regulations approval) will cater inclusively for all categories of user.

Key inclusive design issues

- **how any innovative feature is expected to achieve a particular building design objective**
- **potential barriers to accessibility and the means to overcome these barriers for all members of the community and for specific groups of disabled people such as wheelchair users and other mobility impaired people, blind and partially sighted people, hearing impaired people, and people with learning difficulties**
- **plans that show how the proposal integrates into the urban fabric and circulation routes**
- **sources of inclusive design advice and guidance used**
- **how accessibility will be managed when the development has come into use**

4.42 The Design and Access statement should be appropriate for the type and scale of the planning application. For example Design and Access statement for:

- a new shop front should explain how level access to the building will be achieved
- a change of use application from a shop to a café should show how an accessible toilet will be designed in
- a school extension will explain how it will assist in improving accessibility for pupils and other users of the building.

4.43 When considering potential barriers to inclusive access developers should consider:

- getting to and from a development
- moving around a development
- signage and information
- surfacing materials
- open space
- entering a development
- getting use of facilities
- accessible housing for disabled people

4 Design and Conservation

- historic buildings and historic areas
- circulation space within the building, for example, landing space outside of lifts and sufficiently wide corridors for wheelchair and other users.

4.44 It is recognised that for some conversions and changes of use it may not be possible to incorporate fully accessible and inclusive facilities. In these cases applicants should demonstrate in the design and access statement how they have sought to achieve as high a level of accessibility as possible. Planning applications for developments required with some urgency for the use of a home or other building by an occupier or employer can be given priority on request.

4.45 National advice is that it is not necessary for a planning application, or the Design and Access Statement attached to a planning application, to state that Building Regulations requirements under Building Acts will be met. Nor need they show detail that would fall to be approved under Building Regulations requirements, or submit information about service access arrangements that might satisfy an Equality Act 2010 requirement on service providers to remove physical barriers confronting disabled people (see paragraph 4.51).

4.46 Access and inclusive design should also apply to heritage assets in the borough, in accordance with the Key Principles in the Archeaology and Heritage Assets chapter. The council also advises applicants to refer to external up- to-date guidance on this matter from Historic England and London Plan guidance.

Key Principle - DA2

Accessible and adaptable dwellings M4(2)

To ensure that residential accommodation offers standards of accessibility that can be relied upon, and to ensure that homes are adaptable without the need for post-construction alterations, the Council requires in Local Plan Policy H06 that 90 % all new homes are designed to the standards set out in Approved Document M to the Building Regulations M4(2).

4.47 Wheelchair adaptable dwellings (M4(2)) are designed and built for potential occupation by a wheelchair user (possibly after minor, non-structural, alterations).

4.48 M4(2) will be met where a new dwelling makes reasonable provision for most people to access the dwelling and incorporates features that make it potentially suitable for a wide range of occupants, including older people, those with reduced mobility and some wheelchair users. Reasonable provision is made if the dwelling complies with all of the following:

1. Within the curtilage of the dwelling, or of the building containing the dwelling, it is possible to approach and gain step-free access to the dwelling and to any associated parking space and communal facilities intended for the occupants to use.
2. There is step-free access to the WC and other accommodation within the entrance storey and to any associated private outdoor space directly connected to the entrance storey.
3. A wide range of people, including older and disabled people and some wheelchair users, are able to use the accommodation and its sanitary facilities.
4. Features are provided to enable common adaptations to be carried out in future to increase the accessibility and functionality of the dwelling.
5. Wall-mounted switches, socket outlets and other controls are reasonably accessible to people who have reduced reach.

Key Principle - DA3

Wheelchair user dwellings M4(3)

To ensure that residential accommodation offers standards of accessibility that can be relied upon, the Council requires 10% of all new housing to be designed to meet the standards prescribed in Approved Document M to the Building Regulations for an M4(3) home.

4.49 A wheelchair user home (M4 (3)) is constructed and fitted to a standard suitable for 'day one' occupation by a wheelchair user without the need for alterations.

4.50 M4(3) will be met where a new dwelling makes reasonable provision, either at completion or at a point following completion, for a wheelchair user to live in the dwelling and use any associated private outdoor space, parking and communal facilities that may be provided for the use of the occupants. Reasonable provision is made if the dwelling complies with all of the following:

1. Within the curtilage of the dwelling or of the building containing the dwelling, a wheelchair user can approach and gain step-free access to every private entrance to the dwelling and to every associated private outdoor space, parking space and communal facility for occupant's use.
2. Access to the WC and other accommodation within the entrance storey is step-free and the dwelling is designed to have the potential for step-free access to all other parts.
3. There is sufficient internal space to make accommodation within the dwelling suitable for a wheelchair user.
4. The dwelling is wheelchair adaptable such that key parts of the accommodation, including sanitary facilities and kitchens, could be easily altered to meet the needs of a wheelchair user or, where required by a local planning authority, the dwelling is wheelchair accessible.
5. Wall-mounted switches, controls and socket outlets are accessible to people who have reduced reach.

Key Principle - DA4

Public realm and open spaces

Where new public and open spaces/areas are created or enhanced planning applications should indicate how the interests of disabled people are to be protected:

- How access to public space and walking routes will be enhanced.
- Where pavement or open air dining is proposed, loose or movable furniture and tables should be confined to areas around which there is a rail, planter or other form of visual guarding whose lower part is rigid enough to be detectable with a long cane up to height of between 150mm and 300mm above ground.
- Bollards in a public space should be a minimum of 1000mm high, and be in a contrasting colour or texture to paving or have a high visibility collar.
- Where public seating is provided in public space, it should have:
 - A seating surface 450 - 470mm high, heel space underneath and central or end of seat arms to help people to rise, and
 - at one end, a hard surfaced draw back space for a wheelchair user or a buggy to stand on.

4 Design and Conservation

4.51 Local organisations of disabled people and their caregivers can assist designers. An example of two community groups in Hammersmith and Fulham who have come together to do this, are the Parents Active group of parents with young disabled children, and the Borough Mencap organisation. Their local guidance entitled “We want to play too” (2012) is written to help ensure that the needs of children with impairments who often need to spend longer in play or may need more choices in public play settings than do their peers, are fully catered for.

4.52 “We want to play too” guidance comments on the need for carer seating and fencing to allow social play in free-play parts of a playground, what to consider when choosing from playground equipment products when each have a strong visual appeal, and the positive message sent by signs that welcome all users.

4.53 In the design of public realm and open spaces, the council supports the integration of Sport England Active Design Principles for the benefit of all user groups. The objectives are to improve accessibility, enhancing amenity and increasing awareness, as well as the Ten Principles of Active Design. The Guidance can be found on the following link: <https://www.sportengland.org/facilities-planning/active-design>

Key Principle - DA5

Changes of level in public spaces

Where level changes cannot be levelled off or sloped away across larger sites, the public space affected should be made accessible by handrailed steps and short ramps starting and finishing at the same point, or by signposted alternative route options. Signposted alternative route options should include steps and lifts where long ramps and steeper slopes would be too tiring or steps too high even with rest landings for all people to use without discomfort.

The BS 8300:2009 Code Of Practice recommends the provision of lifts in urban contexts where changes of level exceed 2m.

Gradients in excess of 1:12 will be resisted unless alternative and acceptable step-free routes are provided.

4.54 Changes of level pose problems for people with mobility impairment, and for care givers who may be parents, partners or children of disabled public space users. If insufficient attention is given to making designs for routes and level change options work for everyone, disabled users, and older people who are frail, are likely to be those most affected. When designing ramps and stairs, Part K1 of the Building Regs. should be used.

Key Principle - DA6

Entry into a building

Entrances to a building and to residential block entrances which are above or below street level or positioned to be level should be level or the slope should not exceed a gradient of 1 in 20 from the street, and any doorway threshold chamfer should be less than 50mm. Where this cannot be achieved there should be:

- adjustment of the internal floor level, or
 - a ramped access cut into the floor slab to meet building regulations requirements, or
 - a short ramp access, or
 - a handrailed stair with a ramp or with an open air platform lift at least 1000mm wide x 1250mm and a 900mm wide gate, all of which should be to building regulations guidance
- Where there is a stair up to the entrance of a building, and there is the space, there should always be standard warning texture on the landing above the topmost stair to warn a blind person of the descending stair ahead, or, failing this, handrailing that leads around the landing.
 - At least one of the main doorways into a service use building should have a level threshold and a door (or one door in a pair when in use on its own) that when fully open, has a clear opening width of 800mm, is lightly sprung or power-assisted, and is readily identifiable as an accessible entrance from the street.

4.55 Planning guidance aims to ensure that all the entrances to buildings are practically accessible from the public realm, usually the street.

4.56 The guidance will normally apply to non-residential and mixed use sites, new shopfronts and to new and altered public or visitor entrances.

4.57 However in LBHF there are also some residential sites entered above or below street level. For example there are some that are on back land sites below street level; other sites may be over railway tracks. In these cases, the guidance above should apply outside the entrances to residential sites and buildings, on any sites where there are not to be unstepped street entrances with level access to internal lifts that meet London Plan Supplementary Planning Guidance for circulation in residential buildings.

4.58 In neighbourhoods where flooding is a concern, the March 2012 National Planning Framework Technical Guidance on flood risk states that where the lowest floor level of a new development or a conversion to create a new dwelling is raised above predicted flood level, consideration must be given to providing access for those with restricted mobility.

4.59 For existing non-residential development, the guidance reflects the reality that many business and service premises in LB Hammersmith and Fulham have been built with floor slabs slightly above street level. This is the case even with modern blocks constructed before Building Regulation level access requirements first came into force.

4.60 This guidance aims to help businesses and other service providers of all sizes to consider how to remove access barriers from existing premises as required by the Equality Act 2010. For further information about Equality Act 2010 and Building Regulations access requirements see Appendix 1 below

4 Design and Conservation

Key Principle - DA7

Access to facilities inside a building

Facilities that are essential to disabled people enjoying full access to a building in its planned use should normally be designed to be all-purpose. Plans submitted for new development or change of use should indicate generally how facilities and circulation will be available to each main area of general public or business visitor use, or to the main area, such as an entrance level, where fully accessible services are to be provided. Guidance on ensuring that sufficient space has been allowed for lifts, toilets, and interview rooms is given below:

- Lifts to main general public use areas should have an 1100mm wide door and lift cars that are 2000mm x 1400mm inside in accordance with BS 8300:2009. Otherwise lifts in or at the entrances to public use areas should meet building regulation Part M Approved Document requirements. They should have space at each end clear of gates and door swings for wheelchair users to approach, and 1500mm turning squares outside the doors.
- In larger buildings, plans should identify which enclosed car passengers lifts (other than fire-fighting lifts) are to have a secondary or backup power supply and are equipped to function as Evacuation Lifts for disabled people.
- Accessible unisex toilets in main general public use areas should be 2.0m x 2.2m in size, and meet the recommendations for internal fittings and layout set out in Fig 51b of BS 8300:2009. Such toilets can be regarded as meeting all user needs, as an alternative to building regulations compliant separate sex toilets with 800mm and 1200mm wide cubicles and at least one unisex wheelchair user facility.
- In a main general public or business visitor use area, the minimum size of an accessible interview room, quiet room, or one-to one support teaching room, should be 2.1m x 2.3m, as recommended in BS 8300:2009 [Fig. 30].
- New buildings or major building extensions on smaller school campuses can be designed to provide small group tutorial rooms and all-user or assisted user toilet facilities, as an element in school accessibility plan enhancements that provide ramp entrances and enhance acoustics in other existing school buildings on the campus.

4.61 The guidance above does not take the place of Building Regulations Part M that require new construction to provide accessibility to disabled people and the features in new buildings and extensions that will prevent anyone being excluded from using them. Building Regulations Part M consists of 2 Volumes: Volume 1 Dwellings and Volume 2 Buildings other than dwellings. Standards relating to accessibility and inclusive design within this document refer to standards as outlined in Part M Volume 1.

4.62 There are many old buildings in LBHF. Existing buildings can be made more sustainable for future use by being updated with the accessibility features, and facilities that are recommended in BS 8300:2009 and the other best practice codes that the London Plan considers should be applied when planning applications are submitted.

4.63 An accessible and inclusive local environment enables disabled and older people in particular, with family or neighbourhood support, to remain mobile and to live fully independent everyday lives.

4.64 The most efficient arrangements for inclusive access are usually those where rooms, acoustics, facilities and entrances are designed for all people to use: options that separate people with different needs can be far more costly to manage and maintain.

Key Principle - DA8

Additional facilities in larger buildings

Larger buildings may require the following additional facilities:

In major conference and education centres, and in large leisure, shopping centres, health and education buildings, there should be:

- A 3m x 4m changing room facility in the building with shower, changing table and other BS 8300:2009 recommended fittings, that is identified for exclusive use by disabled people needing care by one or two assistants. The equivalent facility in a large primary or secondary school setting is a 12m² hygiene room fitted out for either staff assistance or independent use.
- Rooms, halls and atria in the main general public or business visitor use areas of a building where people gather to learn, train, meet, dine, socialise or be entertained, should have an acoustic suitable for the use of microphone systems. Microphones in turn can amplify speech through soundfield or auditorium loudspeakers, and through the induction loop or other hearing enhancement transmitters that BS 8300:2009 recommends are in place for hearing impaired building users to tune their hearing aids into.
- Sign systems that guide people around buildings or complexes. BS 8300:2009 gives advice on how pictogram information on signs should have text to explain them, and where notches should be cut into signs so that blind users can feel where Braille text is positioned.

4.65 The guidance above does not take the place of Building Regulations that require new construction to provide accessibility to disabled people, and key features in new buildings and extensions that will prevent anyone being excluded from using them.

4.66 Larger buildings when first built or converted to new use can provide important new facilities for people to use, if comprehensively re-designed for inclusion.

4.67 In LBHF itself, larger public buildings make an essential contribution to the social infrastructure of the Borough. These range from older church buildings converted or extended for learning and public use, to new complexes that bring new business and entertainment or leisure opportunity into town centres, or that create hubs of new activity in neighbourhoods.

4 Design and Conservation

Key Principle - DA9

Hotels and student accommodation

In all building types, (including hotels, nursing and residential homes, university and college halls of residence, and relatives accommodation in hospitals), a proportion of sleeping accommodation should be designed for use by disabled people.

In accordance with London Plan policy 4.5, an Accessibility Management Plan that demonstrates the highest standards of accessibility and inclusion should accompany development applications proposing visitor accommodation.

Accessible accommodation should:

- be located close to lifts on upper floors and close to reception on the ground floor;
- be located along accessible routes;
- be situated so that they have equal access to views enjoyed from standard bedrooms;
- feature an en-suite bathroom;
- cater for a wide range of disabilities;
- provide some rooms with a connecting door to an adjoining room for use by someone assisting;
- allow manoeuvring space for a mobile hoist (where ceiling hoists are not installed);
- ensure walls are capable of supporting the required fittings, e.g. grab rails and drop down support rails.

In line with BS 8300: 2009, the total number of accessible rooms as a percentage should be:

- 5% without a fixed tracked-hoist system;
- 5% with a fixed tracked-hoist system (or similar system giving the same degree of convenience and safety);
- 5% capable of being adapted in the future to accessibility.

Overnight accommodation should ensure a mixture of bathtub and continental style level access shower (Wet Room) en-suite rooms.

The requirements for accessible accommodation applies to new build, conversions and refurbishments.

4.68 Inclusive travel is a growing market opportunity yet many hotel operators fail to integrate accessible room into their business model. The council consider that disabled and older people should enjoy the same level of access and service provided to all other customers. The aim of this supplementary planning document and the London Plan Policy is to encourage all hotel operators to provide an inclusive hotel experience. This requires the whole hotel premises and experience to be welcoming and accessible, achieved through the integration of an appropriate physical environment, room fit-out and equipment and management practices, thereby implementing the London Plan aim of an accessible and inclusive visitor experience for all visitors.

4.69 It is important that proposals achieve the suitable standards of inclusive design. Applicants proposals for student accommodation will be required to demonstrate how the principles of inclusive design, including the specific requirements that some disabled people have, have been integrated, including access to all student facilities, accessibility to all accommodation rooms (encouraging social opportunities).

Key Principle - DA10

Automatic Teller Machines (ATMs)

ATMs should be located where outside ground or internal floor levels allow access to controls at the all-user recommended height.

4.70 The all user recommended height is for angled keypads, screens and slots altering elevations where this requires planning permission should be more than 900mm, but no more than 1200mm above the ground/floor where the user stands.

4.71 Where the screen or keypad is at or near horizontal, and the user has to look down to operate the ATM, no part of the screen or keypad viewed from above should be higher than 900mm. The host business should position the ATM, as advised in national guidance, on level ground, and where it can be read without excessive solar glare.

4.72 ATM's are a form of access to a service, often from a public street or pavement. They are not covered by building regulations when there is no structural opening or alteration to a regulated means of access formed in a building to install the facility, but good practice guidance⁽⁴⁾ has been prepared to cover product design issues that in turn facilitates access to controls, software and services for disabled people.

Key Principle - DA11

Design of ramps and steps

Ramps and steps in public gardens, parks and other public places should be fitted with handrails and rest landings to suit designs and to integrate with adjoining features such as companion stairs, balustrades, parapets, or landscaping to guard open edges, and barriers installed for crowd safety reasons.

4.73 In open public spaces the principles for inclusive access design are how stairs can be designed to be safe for users with limited sight, and useable by people who need to grip a handrail going up or down, and the way that ramps are designed for wheelchair users both when propelling themselves or being helped by people who are themselves of limited strength.

4.74 Accepted best practice for ramps and companion stairs is as follows:

- ramps should be at least 1.5m wide, and have level rest landings without tactile warning surfacing at least 1.5m by 1.5m across where ramp legs join.
- On long ramps and on ramps that are busy enough for people to have to need to pass each other in both directions, ramps should be 1.8m wide.
- Where ramp legs are longer e.g. than about 3m, or where there is not a more direct companion stairway across the route for walking people to use, there should be handrails each side of ramps and around top and intermediate landings.
- Stairways should have handrails each side with extenders that run on beyond the top and lowest steps;
- Stair nosings and kerbs should visibly contrast with tread and riser surfaces in brightness and hue or stand out in other ways under natural and artificial light.

4 (Access to ATM's: UK design guidelines, Centre For Accessible Environments, 2002)

4 Design and Conservation

Key Principle - DA12

Consulting with disabled people on shared space plans

Public space when shared with cyclists and vehicles, should be designed to ensure the safety and comfort of all users of the space, including older and disabled people.

Where shared space is planned, developers should carry out consultation with communities of disabled people, in particular communities of people with little useful and with limited sight

4.75 The Department of Transport has issued research-based recommendations in Local Transport Note 1/11 “Shared Space” October 2011, for shared space design that there should be “comfort space” safe zones provided in any space shared with traffic or parked vehicles.

4.76 Disabled people can use a safe zone to make their way around a public space that is shared with vehicles, if it has a detectable kerb upstand or corduroy surface edge paving that blind people can readily identify. This can operate in conjunction with the de-cluttering, lighting and streetscape enhancement objectives for streets that are sought in the London Plan 2011.

4.77 There is a nationally standardised raised white line with tactile paving markings at each end and at intervals along it, that can be laid along tarmac surfaces to stream cyclists away from pedestrians, where routes are shared with cyclists. This should be provided wherever the flow of pedestrians or speed of approach of cyclists justifies “a safe zone” approach, and where signage has been shown to be ineffective in preventing aggressive or inconsiderate cycling.

Key Principle - DA13

Major regeneration projects

Where there are major regeneration projects involving public spaces and large facilities with public access disabled people should be enabled to engage in the design processes.

4.78 A way that has been used successfully to engage disabled people in such design processes, and where public space extends into and around large new shopping and sports complexes such as in the 2012 Olympics legacy developments, is for the developers, or the lead developer to set up a Consultative Access Group. The Consultative Access Group or CAG is drawn from national and local organisations of disabled people, to consider and review outline and more detailed plans prior to the construction of large new public spaces.

4.79 The developer is responsible for the reasonable costs of establishing the CAG, convening regular meetings, making accessible accommodation and media available at meetings, and covering administration costs. Public and private bodies who manage new public space can find it helpful for a CAG who has been involved in the planning process, to be engaged in any monitoring of new public space in use, e.g. as at Exhibition Road in Kensington, where a CAG will help to review the design assumptions.

Key Principle - DA14

Fire Safety

In the interests of fire safety, and to ensure the safety of all building uses, the council expects development proposals to achieve the highest standards of fire safety. How a building will function in terms of fire, emergency evacuation, and the safety of all users should be considered at the outset to ensure the most successful outcomes are achieved.

4.80 Fire safety is covered by Part B of the Building Regulations, but applications should consider issues of fire safety before the building control application stage

4 Design and Conservation

Shopfront Design across the borough

4.81 Shop fronts and their associated advertisements play a vital role in determining the character of our town centres and shopping streets, primarily because they are the part of the building which has direct interface with the public realm, and have an immediate relationship with the human scale. The design of new shop fronts, therefore, needs careful attention.

4.82 The Council has encouraged a significant improvement in the standard of shop front design and the aim of this document is to maintain this trend of raising the quality, and promoting better designs.

4.83 There has been a revival of interest in shop front design which stems largely from the damage that inappropriate designs and the erosion of key architectural features have caused to our shopping streets.

4.84 Many of Hammersmith and Fulham's Victorian terraces of shops were originally unified in appearance by having their shop fronts installed within a well proportioned framework of pilasters and fascias which were finished in a uniform manner and provided the architectural base for the building. The individual shop fronts were inserted within this strong framework.

Insensitive Designs

4.85 The character and individuality of many of our shopping terraces has been eroded by insensitive shopfront design. Important architectural components and interesting architectural details which make buildings attractive have been discarded over a period of many years to make way for off-the-shelf replacements. It is now widely recognised that shopfronts and signs which disregard the architecture above and around them are the most damaging to an areas character and appearance.

4.86 Nevertheless, the Council still receives some applications for either new shop fronts or illuminated signs which involve designs that are unrelated to the buildings which house them and their location. The inherent qualities of a building, such as architectural character, scale and proportion are largely ignored, resulting in proposed alterations which are unsympathetic and inappropriate to the building and local street scene.

4.87 The shopfront with large areas of uninterrupted glazing in a standard square section aluminium frame and bulky internally illuminated box signs together with the crude imposition of a corporate identity, are usually the most visually discordant elements in shopping areas. The integrity of the building and character of the street is eroded by such insensitive proposals.

4.88 Fascia signs, canopies and roller shutters are often regarded as a later addition distinct from the shop front and building façade. This is inappropriate in most cases, creating a projection which ignores both the design and structure of the building. Excessive fascia depth can also destroy the unity of both the façade and shopping street. Standard projecting box signs can be equally as intrusive where they are unrelated to the architectural character and design of the building or context of other neighbouring signs. The cumulative effect of these when viewed along the street can be one of visual chaos.

4.89 These guidelines are aimed at encouraging an approach to shop front design which acknowledges the relationship between the proposed shop front and the building into which it is set. The age and architectural character of the building will determine the approach to the design of the shop front.

4.90 The opportunity will be taken with each application to apply this guidance in conjunction with Development Plan policies to inspire good design adapted to individual circumstances. Thus each approved application could add to the general upgrading in the quality of shop fronts whilst enhancing the attractiveness and character of the street. The proposed designs for new shop fronts should recognise this aim and seek to be appropriate to their location.

4.91 The cumulative effect of better shopfront designs will be the enhancement of the visual appearance of the Boroughs shopping streets, thereby improving first impression and quality for users, visitors and potential investors. The emphasis is on good quality design of shop fronts and advertisements which will enhance the character of the shopping street and encourage investment and spending, bringing rewards which will ultimately benefit traders.

Planning Permission

4.92 Planning permission is required for new or replacement shop fronts or any other alterations materially affecting the external appearance of the building. Routine maintenance, such as replacing a door or window with one of the same design and materials, or repainting the existing shop front does not normally require planning permission.

4.93 When submitting planning applications for new shop fronts, applicants should submit elevation drawings, sections and floor plans showing the proposed shop front in its context. Its relevant context may vary from solely the upper floors of the building to a setting which incorporates existing shop fronts adjoining the application site. Drawings should be annotated to make reference to proposed materials and colour.

Building regulations

4.94 Even if planning permission is not required, approval for changes to a shopfront may be required under the Building Regulations. These make sure that buildings are constructed or adapted in the right way, and with suitable materials. In particular, Fire Regulations have to be checked both from the structural aspect and also to ensure fast and easy escape from a building. Building regulations are completely separate from planning control: approval under them does not mean that planning permission has been given, nor does a planning permission imply approval under the Building Regulations. Applicants are advised to contact the – Building Control for further guidance and advice.

4 Design and Conservation

Policy Context - Shopfront Design

National Policy

The NPPF encourages good design. It warns that design which is inappropriate in its context, or which fails to take the opportunities available for improving the character and quality of an area and the way it functions should not be accepted. It states that high quality and inclusive design should be the aim of all those involved in the development process. A key objective of these policies is to ensure that developments respond to their local context and create or reinforce local distinctiveness.

London Plan

The London Plan promotes good design. It acknowledges that the quality and function of neighbourhoods and places, and local character, contribute to making London a special place and improve the quality of life.

Local Plan

Local Plan policy DC1 states that all development should “*create a high quality environment that respects and enhances its townscape context and heritage assets*”, whilst Local Plan policy DC5 Shopfronts states, amongst other things, that:

“In order to improve the appearance of the borough’s streets, the council will encourage high quality shopfronts that are designed in sympathy with the age and architectural style of the building concerned, achieving a satisfactory relationship between the ground floor and the rest of the building. The scale of the shopfront should be carefully considered with its proportions, detailing [including vertical and horizontal subdivision] and materials, which have an affinity with the building”

In addition, policy DC9 Advertisements states that, amongst other things:

“The council will require a high standard of design of advertisements which are in keeping with the character of their location and do not impact on public safety and will resist excessive or obtrusive advertising and inappropriate illuminated signs. The design of advertisements should be appropriate to their context and should generally be restrained in quantity and form. The council will use its powers to remove unsightly and inappropriate signs”.

Key Principles

Key Principle - SD1

Shopfront Design

In order to improve the appearance of our streets, the council will encourage high quality frontages that are designed in sympathy with the age and architectural style of the building concerned, achieving a satisfactory relationship between the ground floor and the rest of the building. Architectural detail such as decorative pilasters, console brackets and other attractive features should be retained intact and restored where necessary.

Design and Conservation 4

4.95 The scale of the shop front needs to be carefully considered with its proportions, detailing [including vertical and horizontal subdivision] and materials, which have an affinity with the building. It may be appropriate in areas of consistent terraces or shopping parades for the shop front to reflect the scale and height of stallrisers and fascias of its neighbours thereby harmonising with the overriding character of the street scene.

4.96 All buildings, old and new, will provide a framework into which a shop front can be inserted. Many of Hammersmith and Fulham's 19th century buildings provide a framework of classical elements – pilasters, fascia and cornice which have a proportional relationship with the building. These elements are an integral part of the building façade and should be regarded as such in any design. The area for change is clearly defined within this framework. It is visually disruptive both for the building and street when the new shop front spills out beyond this framework obliterating architectural decoration and features.

4.97 It is important that redevelopment proposals which include retail areas similarly provide a framework into which a shop front of a suitable scale can be inserted. In some schemes it would be appropriate for the detailed design of the shop front to be considered at the same time as the architectural detail on the upper floors in order to ensure that the elevation in its entirety is consistent in terms of design and quality. An area of appropriate scale to accommodate a fascia sign for incoming shop tenants should be clearly defined.

4.98 Provision should be made for satisfactory integration of building services in the overall design where these cannot be located in less sensitive locations. The design of the shop front should not be compromised by unsightly rows of louvres which interfere unacceptably with the proportions of the ground floor. Installations such as louvres and access to refuse stores should be designed to be in keeping with and subservient to the shop front appearance and proportions. In some instances, such installations should be screened by decorative panels that relate to the features and materials of the shop front or building.

4.99 Existing shop windows should not be blanked out by internal or external installations or applications to the glazing in order to retain active frontages. Where a shop front is part of a parade of shops of matching or similar design or within one building, the frontage including any signage should be designed to retain the unified appearance of the parade.

4.100 Fully openable shopfronts will be resisted. They visually erode the base of the building and destroy the established proportions of the façade, and the relationship between the ground floor and the rest of the building. Where the building forms part of a shopping parade, the continuity, cohesion and rhythm of the shopping frontage will be interrupted to the detriment and harm of the local townscape.

4.101 The emphasis is on quality and the flexibility of the design to adapt to individual circumstances. Good shop front design requires skill and sensitivity. Many of the most successful shop fronts in Hammersmith and Fulham have evolved through negotiation. Early consultation with the Council's Planning Division is encouraged.

4 Design and Conservation

Key Principle - SD2

Shopfront access

The Council will expect new or altered shop fronts to accommodate the needs of disabled people.

In particular the following should be taken into account:

- Doorways should therefore be at least 800mm wide, should have doors that are easy to open and should provide a level entrance or a non-slip ramp within the unit
- Entrance doors should be clearly distinguished from their surroundings.
- Vision strips should be introduced on large unbroken areas of glazing.

4.102 The design of shop fronts should secure easy access for everyone by taking account of differing needs, such as the needs of people with partial sight and people who have an ambulant disability and use a walking aid such as a stick or wheelchair ⁽⁵⁾. Large areas of glazing can be confusing and potentially dangerous for partially sighted people and children.

Key Principle - SD3

Shopfront canopies & blinds

Shopfront blinds should be appropriate to the period and character of the building and sensitively integrated into the overall design. Blind boxes should not project forward of the fascia panel, nor obscure any architectural detail or features. Drawn sections will be required with the application.

Canopies and blinds should:

- Be located between the pilasters, respecting the architectural sub-division of the building or terrace. They should not span more than one unit.
- Only be sited at ground floor fascia level. Blinds will not be permitted over doors alone or upper storey or basement windows
- Not interfere with the visibility of traffic signals or signs

4.103 Blinds can add colour and interest to the street scene. They should be appropriate to the period and character of the building and sensitively integrated into the overall design.

4.104 The need to achieve sufficient headroom on the public footway beneath the blind means that the mounting position of the blind needs to be considered in the overall context of the architectural features of the building and the shop front and fascia design. The erection of a blind will not always be feasible given these considerations. The purpose of canopies and blinds should be to afford weather protection, not act as a permanent and prominent substitute for a fascia or projecting sign. They should be retractable so that they may be pulled down only when required and so that the fascia is not permanently obscured.

4.105 Traditional canvas roller blinds were a common addition to 19th century shop fronts. These blinds were housed in boxes which were traditionally located internally behind the fascia or retracted to form a moulded panel within the cornice above the fascia. This model should be used for any proposed blinds on the 19th century buildings.

4.106 Rigid bolt-on blinds made of acrylic or similar shiny materials can often mar an otherwise pleasant shop front design. They are often erected as a means of increasing advertising space. Their structure tends to obscure the fascia and introduces a dominant shape which would be out of character with much of Hammersmith and Fulham's townscape.

Key Principle - SD4

Shopfront burglar alarms & fire alarms

Burglar alarms & fire alarms should:

- not be mounted on the front elevation of the building, and key architectural features such as corbel brackets on the pilasters should be avoided.
- be positioned on the soffit or on the door returns of recessed entrances
- on new shop fronts be incorporated into the design of the frontage, where it should be possible to modify one part of the design to successfully accommodate the unit.

4.107 Burglar alarms and fire alarms are necessary for many premises, their insensitive siting can be visually detrimental to a building. They should not be mounted on the front elevation of the building and on key architectural features.

Key Principle - SD5

Shopfront roller shutters

Roller shutters covering the whole of the frontage of an individual ground floor façade will be discouraged. Efforts should be made to minimise any impact.

Applicants should:

- Plan for and accommodate roller shutters internally, where possible
- Incorporate security glass in shop windows as an alternative to shutters.
- Only provide security grilles, where absolutely necessary and these should be open mesh and located internally.
- Mount all box housings containing roller shutters or grilles internally behind the fascia.
- Consider removable external window security grilles of an open mesh form in certain circumstances.

4.108 Roller shutters covering the whole of the frontage of an individual ground floor façade will be discouraged as they inevitably detract from the architectural integrity of the building. Where they form part of a continuous run of security shutters along a shopping parade, they have a particularly deadening effect on the street scene.

4 Design and Conservation

4.109 Shop traders are entitled to protect their goods and premises and many feel this is best achieved by installing security shutters. However solid roller shutters give the impression that an area is particularly unsafe and tend to provide a canvas for graffiti artists or flyposting to the detriment of the local visual amenity.

Key Principle - SD6

Shopfront advertisements

In the interests of amenity the design of advertising should respect and enhance its locality and use materials of high quality. Particular care will be necessary within conservation areas. All signs should be designed as an integral part of the shop front and not as free-standing items.

The following should be considered for all shop front advertisements:

- Fascia panels should be in proportion with the shop front and building and should be designed as an integral part of the shop
- Where corbels / console brackets remain at the top of the pilasters, the fascia panel should normally be no deeper than the height of these architectural features and positioned below the cornice line, and line through with the capital mouldings on the pilasters.
- New fascia panels should not project forward from the face of the surrounding framework, and should not extend uninterrupted across a number of distinct buildings or architectural bays.
- The temptation to conceal a bulkhead of a suspended ceiling by increasing the depth of the fascia sign should be avoided. A visually more pleasing solution is to set the false ceiling back from the glazing line.
- The size of the lettering should be related to the area of the fascia.

Projecting or hanging signs

The following should be considered for all projecting or hanging signs:

- They should be at fascia level and fixed centrally on a pilaster avoiding damage to architectural detail and ornamentation.
- The size of the sign should be no greater than 900 x 600mm
- The leading edge of the sign should be set back from the kerb by at least 500mm, and the sign should allow for a clearance height of at least 2.6m from the underside of the sign to the pavement [similar dimensional clearances should be used for canopies and awnings].
- No more than one sign per business per elevation will normally be acceptable
- On multi-occupied premises, advertisements should be restricted so as to avoid the appearance of clutter and should be displayed so as to achieve harmony in the appearance of the elevation and in the context of the street scene.

Design and Conservation 4

4.110 All signs should be designed as an integral part of the shop front and not as free-standing items. "A" boards on the pavement outside the shopfront cause clutter and can be particularly hazardous for pedestrians, especially partially sighted and blind persons.

4.111 Projecting or hanging signs can add interest to the appearance of the shopfront and street. In some cases, the scope for fixing a projecting sign may be limited or non-existent due to minimum clearance distances for safety reasons, and the architectural detailing of the shopfront or building concerned.

4.112 Visually, the fascia is the most prominent part of the shopfront and in some cases the whole building. It is therefore important that any proposed fascia is appropriate. Traditionally the fascia displayed the name of the shop, the nature of the business and the street number. This is still important today. The fascia area to receive this information is usually determined by the framework of the buildings ground floor. In some instances, where there is no natural fascia zone to install signage, such as in some modern designs, internal signage displayed behind or within the glazing of the shop front would be acceptable.

4.113 Where premises are multi-occupied advertisements should be restricted so as to avoid the appearance of clutter and should be displayed so as to achieve harmony in the appearance of the elevation and in the context of the street scene.

4.114 Individually applied lettering or hand-painted signs will be encouraged as they give the shop a unique character respecting the individual approach necessary for each shopfront project. Gilding on a dark background can be visually prominent and particularly effective at night where it remains clearly visible.

4.115 Where illumination is considered to be appropriate it should be achieved by using unobtrusive light fittings without, or with limited physical impact [e.g. LED strips, LEDs behind lettering or on the edges of individual letters. Individual back-lit or halo-lit letters can give a subtle but effective form of illumination and will avoid clutter of multiple light fittings across the fascia. Lighting from an external source e.g. swan neck lamps or light troughs will be appropriate for traditional shopfronts or public houses. In order that they are a discrete addition to the elevation, they should be restricted in size and number.

Signs

4.116 Alterations to signs and signboards may require consent under the Advertisement Regulations. Detailed drawings which show the design of the proposed signs, the proposed position and materials, in relation to the shopfront and surrounding architectural detail should be submitted with any application. Applicants are advised to consult the Regulations and contact the councils Planning Division for further advice on the type of signs considered to be appropriate for a particular location.

Conservation Areas

4.117 Many areas of special architectural or historic interest within Hammersmith and Fulham are designated as conservation areas in order to protect their character and appearance. Shop fronts of interest and character make a significant contribution to the street scene within conservation areas, and so their retention will, where appropriate, be sought.

4.118 Sometimes, original features survive hidden under later installations. These should be revealed and retained as they are likely to contribute to the special architectural and historic interest of the area.

4.119 The design of a new shop front should preserve or enhance the character or appearance of the conservation area by the sensitive use of appropriate design styles and materials.

4 Design and Conservation

Listed Buildings

4.120 Any alteration to a shop front which is part of a listed building will require Listed Building Consent if the proposed works affect the special character of the building. Even relatively small-scale changes to the exterior such as those to shop window frames and decorative detail would require listed consent, and may require planning permission. In addition, repainting and alterations to the interior of the shop where they affect the special character of the building require consent.

Local Register of Buildings of Merit

4.121 There are many buildings in the borough, in addition to the listed buildings, which are of merit and which contribute to the character of the locality because of their townscape value, architectural quality, or historic associations. These buildings are included in a Local Register contained within a Supplementary Planning Document. Although alterations to Buildings of Merit on the Local Register do not require Listed Building Consent, planning permission is required for new or replacement shop fronts or any other alterations materially affecting the external appearance of the building. Development will not be permitted if it would result in harmful alteration to Buildings of Merit identified on the Local Register. Any alterations should only be carried out in a way that respects the scale, character and materials of the building.

Additional Guidance

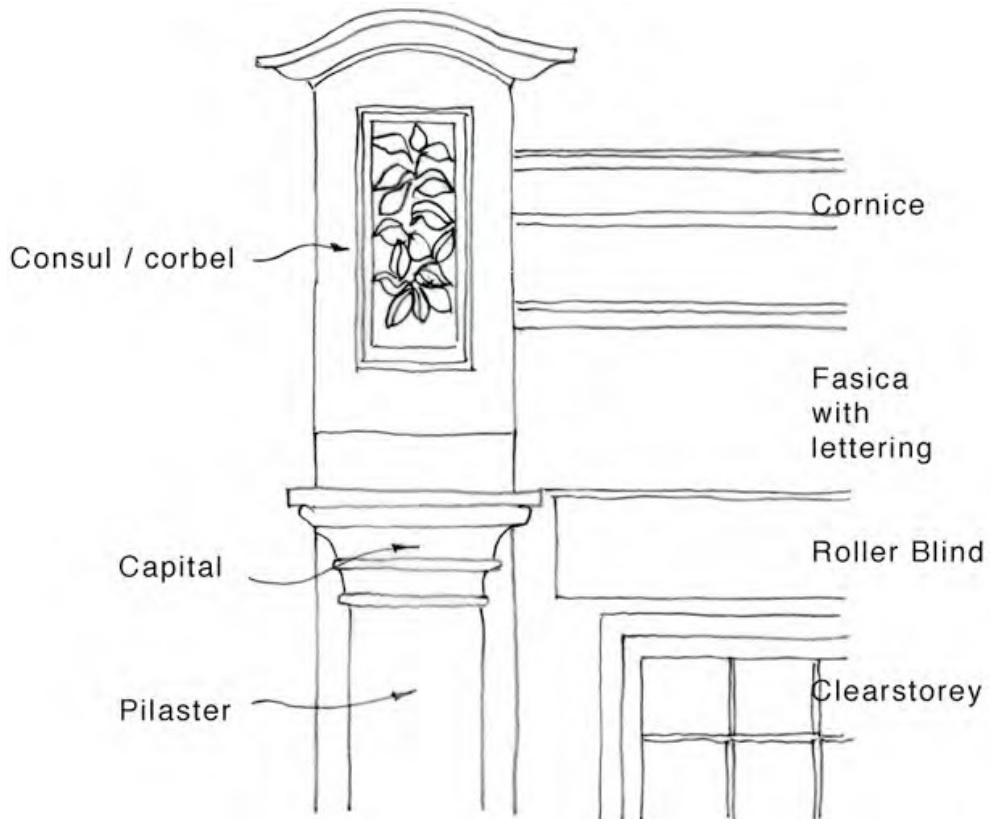
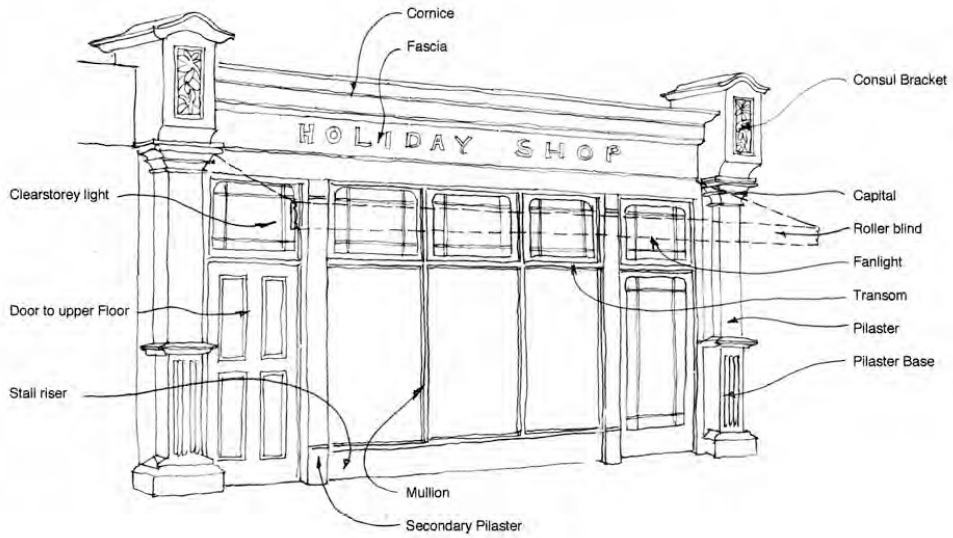
4.122 The council has issued guidance on shopfront design as part of the guidelines for frontage improvements to nos. 54 – 108 Uxbridge Road, a key terrace of buildings on the Local Register of Buildings of Merit forming an important frontage in Shepherds Bush Town Centre and Shepherds Bush conservation area.

4.123 The shopfront design guidance in the Uxbridge Road document has been informed by, and is complementary to, the generic guidance in this publication.

4.124 The Department has also contributed to a shopfront design study for Latymer Court in Hammersmith Road, in conjunction with the Latymer Court Freehold Company. The aim of this project is to encourage the general improvement to the ground floor frontages of the building with a consistent design based on the proportions and form of the original shopfronts.

4.125 You are encouraged to discuss your proposals at an early stage with planning officers. More detailed advice on the appearance of shopfronts and signs for particular locations within Hammersmith and Fulham can be obtained by contacting the Planning Division.

Example shopfronts



4 Design and Conservation

Archaeology and Heritage Assets

4.126 The Borough's rich and varied townscape character that is evident today is largely a result of its historical development. Archaeological remains including prehistoric, Roman, Saxon, Medieval and post Medieval have been discovered in the Borough in areas which today form the focus for development and new information on the borough's archaeological heritage is regularly being provided through excavations linked to redevelopment schemes.

4.127 The current townscape and landscape structure of the Borough can be clearly traced through the successive layers of development over the past two hundred years. Most of the Borough's earliest buildings are now statutorily listed along with historic parks and gardens, and most of the early patterns of development are recognised in conservation area designation. For example, the small crossroads and village greens that first shaped the Borough are now the focus of conservation areas at Parsons Green, Walham Green, Brook Green, Starch Green and Shepherds Bush Green. There are also a number of buildings and artefacts of local importance and interest.

4.128 Historic England has identified one ancient monument and 15 archaeological priority areas (APAs) in the borough. These are identified on the Local Plan Policies Map and are provided with a brief description below. In some cases further details may be found in the identified conservation area character profiles.

Policy Context - Archaeology and Heritage Assets

National policy

The National Planning Policy Framework (NPPF) published in March 2012 has as one of its 12 policies to:

“conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations”.

Section 12 of the NPPF is entitled ‘Conserving and enhancing the historic environment’ and condenses the former PPS5. However, it maintains the spirit of the PPS in upholding the general policy that heritage assets should be “sustained” and “enhanced” for the benefits they bring to the community.

English Heritage is the Government's lead advisory body for the historic environment and has a statutory role in the planning system. The Greater London Archaeology Advisory Service (GLAAS) is part of English Heritage London Region and seeks to promote understanding and enjoyment of the archaeological heritage through its protection, management and interpretation.

London Plan

London Plan **policy 7.8** is concerned with heritage assets and archaeology. This states in sub policy F that:

“Boroughs should, in LDF policies, seek to maintain and enhance the contribution ofburied heritage to London’s environmental quality, cultural identity and economy as part of managing London’s ability to accommodate change and regeneration”.

Local Plan

The council’s Local Plan **policy DC1** on the Built Environment states that:

“all development in the borough.... should create a high quality urban environment that respects and enhances its townscape context and heritage assets” and adds that development throughout the borough should “protect and enhance the character, appearance and setting of the borough’s conservation areas and its historic environment, includingarchaeological priority areas and the Fulham Palace Moated Sites scheduled ancient monument”.

Local Plan **policy DC8** on Heritage and Conservation states that, amongst other things:

” The presumption will be in favour of the conservation and restoration of heritage assets, and proposals should secure the long term future of heritage assets. The more significant the designated heritage asset, the greater the presumption should be in favour of its conservation ”.

Key principles

4.129 The archaeological key principles establish more detailed guidance on the application of policies within the Local Plan. In applying these policies the council will use Historic Environment Planning Practice Guide which has been published to assist local authorities, owners, applicants and other interested parties in applying archaeological principles.

4 Design and Conservation

Key Principle - AH1

Information requirements for applications for consent affecting heritage assets

The council will require an applicant to provide a description of the significance of the heritage assets affected and the contribution of their setting to that significance.

4.130 The level of detail should be proportionate to the importance of the heritage asset (see Glossary) and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset. As a minimum the relevant historic environment record should have been consulted and the heritage assets themselves should have been assessed using appropriate expertise where necessary given the application's impact. Where an application site includes, or is considered to have the potential to include, heritage assets with archaeological interest, the council will require developers to submit an appropriate desk-based assessment and, where desk-based research is insufficient to properly assess the interest, a field evaluation. The council will encourage developers to inform local archaeological societies of the start of any archaeological excavation and to make arrangements for public viewing of excavations in progress, wherever possible, and for subsequent analysis, interpretation and presentation to the archaeological societies and the public of any archaeological results and finds.

4.131 This information together with an assessment of the impact of the proposal should be set out in the application (within the design and access statement when this is required) as part of the explanation of the design concept. It should detail the sources that have been considered and the expertise that has been consulted.

4.132 The council will not validate applications where the extent of the impact of the proposal on the significance of any heritage assets affected cannot adequately be understood from the application and supporting documents.

4.133 See also Greater London Archaeology Advisory Service (GLAAS) Charter as a source of archaeological best practice, pre-app advice and best practice principles.

Key Principle - AH2

Protection of Heritage Assets

There will be a presumption in favour of the conservation of designated heritage assets and the more significant the designated heritage asset, the greater the presumption in favour of its conservation will be. The council will seek to identify and assess the particular significance of any element of the historic environment that may be affected by the relevant proposal (including by development affecting the setting of a heritage asset) taking account of:

- (i) evidence provided with the application
- (ii) any designation records
- (iii) the historic environment record and similar sources of information
- (iv) the heritage assets themselves
- (v) the outcome of the usual consultations with interested parties; and
- (vi) where appropriate and when the need to understand the significance of the heritage asset demands it, expert advice (from in-house experts, experts available through agreement with other authorities, or consultants, and complemented as appropriate by advice from heritage amenity societies).

Where the loss of the whole or a material part of a heritage asset's significance is justified, the council will require the developer to record and advance understanding of the significance of the heritage asset before it is lost, using planning conditions or obligations as appropriate.

4.134 In considering the impact of a proposal on any heritage asset, the council will take into account the particular nature of the significance of the heritage asset and the value that it holds for this and future generations. This understanding will be used by the council to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposals.

4.135 If the evidence suggests that the heritage asset may have a special significance to a particular community that may not be fully understood from the usual process of consultation and assessment, then the council will take reasonable steps to seek the views of that community.

4.136 The council will take into account:

- the desirability of sustaining and enhancing the significance of heritage assets, and of utilising their positive role in place-shaping; and
- the positive contribution that conservation of heritage assets and the historic environment generally can make to the establishment and maintenance of sustainable communities and economic vitality.

4.137 The council will take into account the desirability of new development making a positive contribution to the character and local distinctiveness of the historic environment. The consideration of design will include scale, height, massing, alignment, materials and use.

4 Design and Conservation

4.138 Where there is evidence of deliberate neglect of or damage to a heritage asset in the hope of obtaining consent, the resultant deteriorated state of the heritage asset will not be a factor taken into account in any decision.

4.139 Where loss of significance is justified on the merits of new development, the council will not permit the new development without taking all reasonable steps to ensure the new development will proceed after the loss has occurred by imposing appropriate planning conditions or securing obligations by agreement.

4.140 Significance can be harmed or lost through alteration or destruction of the heritage asset or development within its setting. Loss affecting any designated heritage asset will require clear and convincing justification. Substantial harm to or loss of a grade II listed building, park or garden will be exceptional. Substantial harm to or loss of designated heritage assets of the highest significance, including scheduled monuments, grade I and II* listed buildings and grade I and II* registered parks and gardens, will be wholly exceptional.

4.141 Where the application will lead to substantial harm to or total loss of significance the council will refuse consent unless it can be demonstrated that:

- (i) the substantial harm to or loss of significance is necessary in order to deliver substantial public benefits that outweigh that harm or loss; or
- (ii) (a) the nature of the heritage asset prevents all reasonable uses of the site; and
 - (b) no viable use of the heritage asset itself can be found in the medium term that will enable its conservation; and
 - (c) conservation through grant-funding or some form of charitable or public ownership is not possible; and
 - (d) the harm to or loss of the heritage asset is outweighed by the benefits of bringing the site back into use.

4.142 To be confident that no appropriate and viable use of the heritage asset can be found, the council will require the applicant to provide evidence that other potential owners or users of the site have been sought through appropriate marketing and that reasonable endeavours have been made to seek grant funding for the heritage asset's conservation and to find charitable or public authorities willing to take on the heritage asset.

4.143 Where a proposal has a harmful impact on the significance of a designated heritage asset which is less than substantial harm, in all cases the council will:

- (i) weigh the public benefit of the proposal (for example, that it helps to secure the optimum viable use of the heritage asset in the interests of its long-term conservation) against the harm; and
- (ii) recognise that the greater the harm to the significance of the heritage asset the greater the justification will be needed for any loss.

4.144 Not all elements of a Conservation Area will necessarily contribute to its significance. The above policy will apply to those elements that do contribute to the significance. When considering proposals, the council will take into account the relative significance of the element affected and its contribution to the significance of the Conservation Area as a whole. Where an element does not positively contribute to its significance, the council will take into account the desirability of enhancing or better revealing the significance of the Conservation Area, including, where appropriate, through development of that element. This should be seen as part of the process of place-shaping.

4.145 The process of investigating the significance of the historic environment, as part of plan-making or development management, should add to the evidence base for future planning and further the understanding of our past. The council will make this information publicly available, including through the relevant historic environment record.

4.146 A documentary record of the past is not as valuable as retaining the heritage asset, and therefore the ability to record evidence of the past will not be a factor in deciding whether a proposal that would result in a heritage asset's destruction should be given consent. The extent of the requirement to record the past should be proportionate to the nature and level of the asset's significance. Developers should publish this evidence and deposit copies of the reports with the relevant historic environment record. The council will require any archive generated to be deposited with a local museum or other public depository willing to receive it. The council will impose planning conditions or obligations to ensure such work is carried out in a timely manner and that the completion of the exercise is properly secured.

Scheduled Ancient Monuments

Fulham Palace

4.147 Historic England has classified the Fulham Palace Moated Site as a Scheduled Ancient Monument. This is the most important archaeological site in the borough and lies in the Bishops Park Conservation Area. Excavations at Fulham Palace have uncovered Neolithic pottery, flint implements and features dating to circa 3,000-4,000 BC. Some of the flints may date to the even earlier Mesolithic period.

4.148 There is also evidence of Iron Age occupation, but the most extensive settlement evidence to date is of the Roman-British period, 3rd-4th centuries and possibly 5th century AD. Ditches, pits, gravel surfaces, coins, pottery, animal bones and items of women's jewellery; as well as building materials, stone brick and tiles, infer a substantial settlement. Its exact nature though is not yet known. The settlement appears to be centred on a road or trackway, probably in use since pre-Roman times, connecting with a ford across the Thames, linking Fulham with Putney. There is evidence of similar occupation there.

4.149 The gardens to Fulham Palace were first documented in the 16th century when Bishop Grindal established a botanic garden between 1559-70. Bishop Compton (Bishop between 1675-1713) was a horticulturalist and collector of rare plants and his collection included species from North America. It is thought that a formal garden layout recorded by Rocque in 1746 was the work of George London who advised Bishop Compton during the 1670s. These gardens were replaced by a less formal layout for Richard Jarvis in the 1760s. Further alterations took place between 1813-28 and 1828-56 and were undertaken by Bishops Howley and Blomfield. In 1973, Fulham Palace ceased to be the official residence for the Bishops of London and the gardens were opened as a public park.

Archaeological Priority Areas

4.150 An Archaeological Priority Area (APA) is a defined area of particular archaeological significance or vulnerability. APAs inform the practical use of national and local planning policies for the recognition and conservation of archaeological interest. APAs are set out on the Policies Map by the Council on the advice of Historic England. Historic England is currently reviewing APAs boundaries and descriptions and new designations are expected in the near future, this work will be informed by the results of recent archaeological investigations which have advanced understanding of the significance of archaeological remains in the Borough.

4 Design and Conservation

Fulham Village APA

4.151 This was the main settlement of the parish from Saxon times onwards and now lies in the Bishops Park Conservation Area. According to documentary evidence, the principal Medieval settlement at Fulham was concentrated on the eastern side of Fulham High Street in the Fulham Park Gardens Conservation Area. However, this settlement included the parish church (All Saints for the whole of the Borough) and the Bishop's Manor House at Fulham Palace, which are situated within the Bishops Park Conservation Area. The Bishops of London held the Manor from 704, when the Bishop of the East Saxons bought the estate from the Bishop of Hereford. The Medieval palace was demolished in 1506. By 1086, the time of the Domesday Book, Fulham appears to have been fairly prosperous with ample ploughland, meadows, woodland and a small weir, or fish trap. Areas of land were allocated to Normans and some burgesses of London, the latter of whom were possibly the predecessors of the affluent Londoners who held large estates in Fulham during the Medieval period.

4.152 There is no evidence from the Domesday Survey that in the 11th century Fulham village possessed a church. However, the first known rector was appointed in 1242 when a church must have existed. This Medieval church at All Saints was demolished in 1880 except for its 15th century tower. Bear Street was the original name for Fulham High Street, and it was used up to the end of the 18th century. Prior to the construction of the old Fulham bridge across the river Thames in the early 18th century, Bear Street extended from the river front, where the ferry docked, for a short distance north-easterly and then almost due north to the high ground by Colehill. Here the way divided, with one way extending north-west to Hammersmith (the existing Fulham Palace Road), and the other way extending eastwards to Walham Green.

Ravenscourt Leper Hospital APA

4.153 This area (now to the south of Ravenscourt Park station) had long had a reputation as a healthy place to live and provided the location for the most distant of the leper hospitals set up in and around London at the end of the mediaeval period. Known to have been in use from c. 1500 to the mid-17th century. The APA is situated within the Ravenscourt and Starch Green Conservation Area.

Ravenscourt Manor House (Palingswick) APA

4.154 The APA is situated within the Ravenscourt and Starch Green Conservation Area south of Ravenscourt Park. The house was first recorded in the 12th century and became one of the most significant houses after Fulham Palace. By 13th century there was a large moated mansion situated in the ecclesiastical manor of the Bishop of London. In 14th century it was much enlarged and probably had an outer court occupied by Alice Perrers, the companion of Edward III's declining years. It was rebuilt as a brick mansion in the 16th century and again in 18th century. The Georgian brick building was too badly damaged by incendiary bombs in 1941 to be refurbished and was demolished.

Hammersmith Creek, Queen Caroline Street and Broadway APA

4.155 The APA lies within the King Street East, Mall and Hammersmith Broadway Conservation Areas. includes the possible original Saxon settlement of Hammersmith around the mouth of the now culverted Creek. It includes the Medieval and post-medieval settlement of Hammersmith along riverfront, and Roman coins and pottery have been uncovered from foreshore of Queen Caroline Street and Broadway. A 17th century convent and 17th century Portuguese embassy were on Hammersmith Road. The town brewery was established in 1780 by Thomas Cromwell and existed near the mouth of the Creek.

4.156 The village of Hammersmith was described in the mid 1720's by Defoe as "formerly a long scattering place, full of gardeners grounds with here and there a house of some bulk." In the first quarter of the 19th century Hammersmith Village was extending outwards from the Broadway and its principal thoroughfare King Street was lined with terraces.

Winslow Road Area APA

4.157 This APA, consisting mainly of the Hammersmith Embankment development site, has revealed prehistoric and Saxon settlements, a 17th century mansion, subsequently Brandenburg House, and an 18th century theatre. On the southern edge of the grounds of Brandenburg House an early Saxon settlement of the 5th/6th centuries AD was discovered during trial archaeological excavations in the 1980's. This is one of the most important early Saxon settlements in the London area discovered to date. Finds include the sunken floors of several huts, pottery, and the skeleton of a horse.

Parson's Green APA

4.158 Situated in the parsons Green Conservation area this APA is centered on Roman, medieval and post-medieval settlement around the green and Peterborough House to the south. The area was formerly part of the Manor of Fulham. Records state that Peterborough House once stood on the south-east of the green, having been built on the site of a famous mansion, formerly as Brightwells. Near to Peterborough House stood an ancient mansion which was formerly owned by Sir Edward Saunders, Lord Chief Justice of the King's Bench in 1682, and later became the residence of the famous novelist, Samuel Richardson.

Walham Grove APA

4.159 Medieval and post-medieval settlement and market place of the parish.

Sandford Manor House APA

4.160 The APA on the south side of King's Road extends from the borough boundary east of Stamford Bridge west as far as Cambria Street, and south to include Glyn Close. It relates to Sandford Manor House, a Grade II* listed building which was a sub-manor house from medieval times. The post-medieval manor house had saltpetre works, stoneware and tin-glaze pottery works, and cask and dye works within its curtilage

William De Morgan Pottery Works (Townmead Road Estate) APA

4.161 Late-19th and early-20th century, of interest to collectors and historians of the Arts and Crafts Movement. In 1888 the business was moved, for the last time, to Sands End (Fulham), where De Morgan began a ten-year partnership with the architect Halsey Ricardo. It was here that De Morgan created much of his finest work.

4 Design and Conservation

Hurlingham Park APA

4.162 Neolithic finds and 17th century plague pit. From before 1066 the land within this conservation area belonged to the Bishops of London and formed nursery gardens and meadows along the riverside. Hurlingham House, to the south of the APA, which was built from 1760 as a villa fronting the River Thames, now forms the main part of the Hurlingham Club House.

Broomhouse APA

4.163 Medieval and possible Saxon settlement.

Martin Brothers Pottery Works APA

4.164 Site of 19th century works of interest to collectors and historians. The Pottery was started in Fulham in 1873. The pottery is considered to represent the transition from decorative Victorian ceramics to twentieth century studio pottery in England.

Lygon Almshouses and corner of Finlay Street/Fulham Palace Road APA

4.165 This area was occupied in Neolithic times. Site of the village windmill from at least the beginning of the 15th century.

Rowberry Close APA

4.166 The riverside area has been occupied since pre-historic times. Archaeological work in the 1970's, during the redevelopment of Rosebank and adjoining wharves, produced Neolithic flint implements and pottery (circa 3,000 BC), late Iron Age pottery and an isolated Roman coin of the 4th century AD.

4.167 There is a high and dry sandbank here in a marshy stretch along the edge of the Thames and there may well have been a ford across the Thames in earlier times. The trackway connecting it is today represented by Crabtree Lane and Lillie Road.

4.168 Until the 19th century there was evidence of man-made earthworks along the riverside, possibly dating back to pre-Roman times.

4.169 Next to the Crabtree public house was a pottery operating in the 18th century and referred to in contemporary documents as the pot-house. Some green-glazed waste pottery fragments, possibly from this site, were found on the Crabtree Wharf opposite, during its redevelopment as Adam Walk in the 1970's.

King Street APA

4.170 Iron Age prehistoric earthwork, a short section of which was excavated at 120-124 King Street. May have protected a single farmstead, but may have been a more substantial settlement - a "proto-town", or possibly have been a long linear territorial boundary.

Archaeology elsewhere in the borough

4.171 The archaeological heritage of the borough does not stop at the boundaries of the ancient monument and the APAs, and heritage assets have been found elsewhere in the borough. The Greater London Archaeological Advisory Service (GLAAS) are of the view that it would be beneficial to have an APA designation along the whole riverside/foreshore area of the borough, given the highly significant potential of the River Thames to yield archaeological finds and sites both generally and in this section of the River more specifically.

4.172 The council has designated its existing APAs through the Local Plan process and identified these on the Policies Map. The council considers this to be the appropriate process for such designations, and whilst it is open to the possibility of a riverside/foreshore APA it is not intending to designate a new APA through this SPD. Instead it acknowledges the possibility of designating an additional APA at a future review of the Local Plan and recognises the Thames to be an important area of archaeological potential.

4 Design and Conservation

5 Noise and Nuisance

5.1 The planning system is a proactive means of managing the borough's air quality and any potential increase in ambient background noise and other pollution. While development is encouraged, the council will aim to protect existing and prospective amenity within the borough, in accordance with national, metropolitan and local government policies.

5.2 In many areas of the borough, the main existing external environmental noise sources are road and rail traffic and to a lesser extent aircraft noise mostly over southern parts. Industrial pollution within the borough is minimal, however, wherever transport or industrial developments are in close proximity to residential amenity, noise and other polluting emissions will need to be contained and minimised.

5.3 Industrial types of noise can also be associated with building services plant and equipment, such as air-conditioning systems, commercial kitchen extracts etc. This type of noise can be a problem particularly in the borough's busy town centres where residents live in close proximity to shops, restaurants, pubs and entertainment premises. Consideration must also be given to this type of noise where such installations are proposed in new regeneration and opportunity areas of mixed residential and commercial uses.

5.4 Pubs, clubs, restaurants, cafés, gyms and places of entertainment add to create a vibrant community particularly in the borough's town centres. However, such commercial uses have the additional potential for noise disturbance from customers on and around the premises, not least because associated activities occur in the evening and often extend late into the night.

5.5 Leisure facilities such as gyms have clear health benefits, allowing individuals to remain active and fit in a busy urban environment. However, their operation is often associated with high levels of music along with the use of exercise equipment that can generate structure borne noise and vibration. New facilities are often proposed for buildings that adjoin residential dwellings and which, without careful planning and upgrading of sound insulation, can cause severe disturbance to neighbours.

5.6 Any increase of vehicle use such as private hire vehicles and deliveries associated with commercial sites can adversely affect residents, both in the town centres and in quieter streets.

5.7 Cooked food outlets can not only give rise to noise disturbance but also often emit unwanted cooking smells unless effective odour control equipment and extract ventilation is installed. An assessment of the impact of noise, smell and other pollution from commercial developments and outdoor uses on nearby residential occupiers will therefore be required at planning application stage.

5.8 The council recognises that there is an ever increasing need for residential accommodation within the borough. However, poor design and layout of rooms often leads to neighbour noise complaints which could be minimised by suitable stacking of rooms. Furthermore, the trend for hard surface flooring necessitates careful consideration of the sound insulation to prevent excessive transmission of noise to adjoining dwellings.

5.9 Wherever premises are being demolished and building work is being carried out, there is the potential for excessive noise and dust affecting existing occupiers in the area. It is important to ensure that new developments are created without causing unnecessary pollution during the development stages.

5.10 In the north of the borough, there are a number of waste and recycling sites, primarily regulated by the Environment Agency. These waste sites now fall within the boundary of the Old Oak and Park Royal Development Corporation (OPDC). Where applications are received for new sites or extensions, the council will work with the OPDC and other bodies such as the Environment Agency to ensure that dust, smell and other pollution will be adequately contained and controlled. We will also ensure that the interests of the existing waste and recycling sites are protected by ensuring that any proposed new

5 Noise and Nuisance

residential developments that might be exposed to noise from the sites are carefully planned, with appropriate noise mitigation installed to maintain appropriate internal noise levels, to protect future residents.

5.11 There are three safeguarded wharves in the borough which are located within the South Fulham Riverside Regeneration Area. They are, Hurlingham Wharf, Comley's Wharf and Swedish Wharf. The development of sites adjacent or opposite to the borough's safeguarded wharves should be designed in a way as to minimise the potential for conflicts of use and disturbances, including noise.

Policy Context - Noise & Nuisance

National Policy

The Government's National Planning Policy Framework states that "planning should contribute to conserving and enhancing the natural environment and reducing pollution" (see NPPF para.17).

The Noise Policy Statement for England by DEFRA advises further on considerations that should be had for working to secure a healthy environment.

The NPPF seeks to achieve sustainable development and states that the planning system should be concerned with "preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability".

The NPPF sets out the following aims for planning policies and decisions:

- avoid noise from giving rise to **significant adverse impacts** on health and quality of life as a result of new development;
- mitigate and reduce to a minimum other **adverse impacts** on health and quality of life arising from noise from new development, including through the use of conditions;
- recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and
- identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

However, the government's planning practice guidance states that "neither the Noise policy statement for England nor the National Planning Policy Framework (which reflects the Noise policy statement) expects noise to be considered in isolation, separately from the economic, social and other environmental dimensions of proposed development".

The planning practice guidance goes on to set out how local authorities should assess the likely noise impact of a planning proposal:

- whether or not a **significant adverse effect** is occurring or likely to occur;
- whether or not an **adverse effect** is occurring or likely to occur; and
- whether or not a good standard of amenity can be achieved.

Both the planning practice guidance and NSPE provide advice on the use the terms 'significant adverse' and 'adverse', and their related terms which should be used when assessing noise impact:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

5 Noise and Nuisance

This is the significant observed adverse effect level: This is the level of noise exposure above which significant adverse effects on health and quality of life occur.

Further advice on what these terms mean in practice can be found on the planning practice guidance website.

Some national noise standards are derived to some extent from publications of the World Health Organisation, the latest being “Guidelines for Community Noise 1999”.

The Environmental Noise (England) Regulations 2006 give effect to EU Directive 2002/49/E, relating to the assessment and management of environmental noise.

London Plan

At the regional level, both the London Plan and the Mayor's Ambient Noise Strategy promote the efficient management of noise in London and the application of good acoustic design principles.

London Plan 2011 Policy 7.15 'Reducing Noise and Enhancing Soundscapes' seeks to minimise the impacts of noise and to separate noise sensitive development from major sources of noise. As well as enhance soundscapes new technologies and improved practices to reduce noise at the source.

The Mayor of London has also published a draft London Environment Strategy for consultation, which is due to be adopted in early 2018.

Local Policy

The Council's Local Plan Policy CC11 (Noise) sets out the requirements for noise, including general considerations for developments within the borough where development may generate or be adversely affected by noise.

Policy CC12 (Light Pollution) seeks to limit the impact of light pollution from artificial light on local amenity and nature conservation.

Policy CC13 (Control of Potentially Polluting Uses) states that in order to ensure the protection and enhancement of our natural and built environment, it is necessary to control various types of pollution that have potentially adverse impacts on the amenity of people who live and work within the borough.

Noise and environmental pollution issues are also relevant to other policies in the Local Plan including Policy T2: Transport Assessments and Travel Plans, Policy T7: Construction & Demolition Logistics, Policy DC11: Basements, Policy HO11: Detailed Residential Standards, Policy DC2: Design of New Build, Policy TLC5: Managing the Impact of Food, Drink & Entertainment Uses, Policy CF3: Enhancement & Retention of Arts, Culture, Entertainment, Leisure, Recreation & Sport.

Key Principles

Key Principle - NN1

Noise and vibration - survey and report

Applications for residential and other noise sensitive developments that are proposed near existing noise sources and for developments that have the potential to increase existing noise or vibration levels either due to location, use, activity or installation must be submitted with a noise and/or vibration survey and report prepared by a competent professional acoustician who is a member of the Institute of Acoustics to support the proposal.

5.12 Noise and/or vibration surveys and reports will be required for all types of noise generating developments. These should consider and assess:

- Internally and externally located building services plant and equipment,
- Residential and other noise sensitive developments proposed in areas that would be exposed to existing noise from sources such as transport, commercial and industrial uses (including the boroughs three safeguarded riverside wharves) and vibration from surface railways, including heavy freight trains and trains of the underground network.
- Significant demolition and construction phases including those of subterranean developments;
- Places of entertainment, including proposed pubs and clubs, sports facilities, religious centres, cultural sites, educational establishments, recreational or leisure centres, retail centres and other commercial uses.

5.13 Noise and vibration monitoring reports will be required for substantial demolition and construction works, especially those close to noise sensitive premises.

5.14 Applicants for subterranean developments should consider noise and vibration levels and protective measures against adverse effects on nearby properties, foundations, roads and services. These requirements will need to be addressed in a Construction Method Statement, to be submitted with the planning application and comply with Code of Practice and/or successive legislation, policy, standard or guidance. For large sites and major developments, applications are strongly advised to apply for a Section 61 'prior consent' (under the Control of Pollution Act 1974) which may be granted with relevant conditions in order to protect surrounding occupiers.

5.15 Should you not submit a noise survey and report with the application where required above, your application may not be validated, or it may be refused or conditions imposed to limit the impact of noise or vibration, as applicable. However, where compliance requires external noise attenuation, such as acoustic enclosures, acoustic screens or plant equipment permission may be refused where these have an unacceptable visual impact on the host building or where the requirements of a condition are not otherwise shown to be achieved (see Appendix 4 for more details and criteria).

5 Noise and Nuisance

Key Principle - NN2

Noise sensitive development - noise and vibration

Wherever possible and practicable, residential and other noise sensitive development including hospitals, sheltered and nursing homes, offices, schools and similar establishments proposed in areas where they would be exposed to existing external noise shall be designed so as to be located away and protected from significant transport, industrial (including the boroughs three safeguarded riverside wharves) and/or commercial and other non-residential noise sources.

Locations for new dwellings or conversions or other noise sensitive developments that are exposed to noise from transport and/or other non-residential sources should be assessed in accordance with relevant guidance and criteria. Planning applications for sites near substantial transport and/or other non-residential noise (including the boroughs three safeguarded riverside wharves) must be accompanied by an acoustic report detailing maximum existing noise levels for night and daytime periods and noise mitigation measures, as applicable.

5.16 Noise sensitive developments include residential dwellings (including conversions), sheltered and nursing homes, offices, schools, hospitals and similar establishments that are proposed in areas where they would be exposed to existing noise. They also consist of developments where new occupiers would be exposed to noise due to inappropriate construction and/or design layout of buildings, rooms and external amenity space.

5.17 Separation of noise sensitive developments from significant existing noise sources can be achieved, for example, by good design layout of the development and location of habitable rooms on quieter facades. In addition, adequate sound insulation will be required. Where mechanical ventilation is required in areas of high noise levels and poor air quality, this should be noise attenuated and the air intake should be from the cleanest aspect of the building.

5.18 Early discussion with the Noise and Nuisance Team is recommended for applications where sites are exposed to high noise levels. Contact the Environmental Health Department on tel. 020 8753 3376 or email environmentalprotection@lbhf.gov.uk

5.19 In some situations, applicants may offer contributions, arrangements or restrictions as part of a legal agreement, to help reduce existing noise from neighbouring sites and achieve an acceptable noise environment for prospective occupiers in the proposed development.

5.20 Significant vibration within the borough is most likely to be generated by surface trains and trains using tunnels of the underground network. Ideally, track form and wheel/rail interface would be in the optimum condition to minimise vibration generation. Road traffic is unlikely to generate any significant vibration where the road surface is in reasonable repair. A vibration assessment should be undertaken and report be submitted to the Council where railways, either surface or underground, are within 75m of a proposed development site.

(See Appendix 4 for further guidance)

Key Principle - NN3

Sound Insulation between dwellings and between commercial and residential premises

In the design of new residential dwellings (including changes of use and conversions) careful consideration should be given to stacking and layout of rooms in relation to adjoining walls/floors/ceilings.

To ensure the amenity of occupiers is not adversely affected by noise, the council expects all parts of adjoining dwellings to enhance the sound insulation, including where the adjoining room is of a similar use.

Where a residential dwelling adjoins a commercial premise, substantially enhanced sound insulation will be expected.

5.21 The requirements of the Building Regulations are usually deemed adequate for the sound insulation transmission loss between floors and walls of adjoining dwellings. No planning conditions are normally necessary.

5.22 However, poor or inappropriate installation of sound insulation, inappropriate workmanship during the construction or conversion of the building and inappropriate arrangement/ stacking of rooms can cause serious neighbour noise disturbance from normal household activities and behaviour. These are frequent causes of complaints both in conversions and new builds.

5.23 It is essential that conversions and new dwellings are designed with the appropriate room arrangement in separate adjoining dwellings, ensuring that:-

- large family units are not situated above smaller units,
- similar types of rooms in neighbouring dwellings are stacked above each other or adjoin each other, ie. bedroom – bedroom, living room – living room, etc.
- halls are used as buffer zones between noise sensitive rooms of one dwelling and living areas of adjoining dwellings and communal areas incl. main entrances, staircases, lift shafts, service areas, etc.

5.24 In residential dwellings, even where rooms of a similar use are adjoining one another, noise disturbances can still arise. With this in mind, the council expects all parts of adjoining dwellings to enhance the sound insulation above that in the Building Regulations. Enhanced sound insulation will be required by condition or, in situations where there is particularly inappropriate stacking of rooms, a recommendation to refuse planning permission may be made. Ideally specialist operatives approved by the system supplier/designer should undertake the installation of sound insulation, with adequate site control to ensure good quality work.

5.25 The contemporary fashion for hard surface finishes such as hardwood floors make good impact sound insulation in floor/ceiling structures of apartment blocks essential.

5.26 The requirements of the Building Regulations specify the minimum standard of sound transmission loss required between floors and walls of adjoining dwellings. These requirements are rarely adequate where commercial use adjoins residential use.

5 Noise and Nuisance

5.27 If an application proposes a development where residential and commercial uses will share separating floors, ceilings or walls, an assessment of the sound insulation performance of the floor, ceiling or wall should be submitted together with construction details of any proposed sound insulation system and structure. Substantially enhanced sound insulation, compared to the minimum residential standards of the Building Regulations, will be required.

(See Appendix 4 for further guidance)

Key Principle - NN4

Noise generating development

All noise generating development, including plant, machinery and equipment and where the proposed use or activities have the potential for people to generate noise, will be subject to requirements to minimise noise to relevant criteria, where applicable, in order to protect residential and other noise sensitive amenity.

Vehicle noise

5.28 The impact of an increased use of vehicles associated with new developments, including deliveries, location of loading bays and service yard activities involving the use of forklifts etc. will need to be assessed and details be submitted in a Servicing and Delivery Plan.

5.29 A prediction of any changes in existing traffic volume should be outlined in a Transport Assessment to be submitted alongside an application for development. Local Plan Policy T2 on transport assessments and travel plans, supported by the section on Transport in this SPD provide information on how to assess the likely impact from HGV's and other vehicles.

(See Appendix 4 for further guidance)

Noise associated with: pubs, clubs, bars, restaurants, take-aways, places of entertainment, sports, religious, cultural, educational, leisure, retail etc.

5.30 Developments likely to generate noise should normally be separated from noise sensitive and residential uses. However, a mixture of development, when correctly proposed, can add to the attractiveness of a mixed residential, social, sports and commercial area.

5.31 Commercial developments such as fast food restaurants, music venues and public houses pose particular difficulties, partly because associated activities are often at their peak in the evening and late at night. Consideration must be given not only to noise that is generated within the premises but also the attendant problems of associated vehicle noise and noise that may result from participants in activities or customers.

5.32 Careful consideration should be given to the likely noise impact of people arriving, queuing or otherwise congregating and departing the venue. Entry and exit routes, designated smoking areas and other outdoor uses such as pub gardens etc. should be carefully located away from noise sensitive facades or be effectively screened.

5.33 An assessment will be required of the impact of noise from commercial and other non-residential developments on existing occupiers of noise sensitive premises and prospective occupiers in proposed mixed developments. The assessment should identify all likely noise sources and include a prediction of the potential noise impact on occupiers of adjoining and surrounding properties.

Noise and Nuisance 5

5.34 A site management plan should be submitted with details of effective mitigation measures, such as:-

- Active management of entrances and exits to minimise noise disturbance from people as they arrive, queue, congregate and depart from the premises or use smoking areas. Similar controls should be in place on likely routes in the vicinity that customers may take to public or private transport.
- Suitable arrangements for additional private vehicles, taxis and mini cabs visiting the site, parking and driving away. Where appropriate, arrangements should be made with taxi and private hire vehicle companies to ensure drivers arrive and depart as quietly as possible without sounding horns or leaving engines idling unnecessarily.
- Prevention of noise disturbance caused by staff before, during and after opening hours including staff who arrive early morning or depart late at night after trading.
- No disposing of bottles and cans to outdoor bins or areas in the evening, at night and during the early morning. Similar restriction may also apply to the use and emptying of bottle banks.
- Screening or enclosing noise emitting activities/ areas to protect noise sensitive premises such as outdoor storage areas, pub gardens, etc.
- Considerations for deliveries and refuse collections (See Appendix 4 and 5)

5.35 Organised delivery of food from the premises will not be permitted where the amenity of occupiers in the area is likely to be adversely affected. Alternatively, times of deliveries may be restricted and submitted details should demonstrate that motor vehicles including vans, motor cycles, mopeds, scooters etc. are used sensibly and are parked in a suitable location where starting up and manoeuvring does not cause noise disturbance to residents.

5.36 Pubs, clubs and other non-residential developments in this category should be constructed with adequate sound insulation ensuring that music noise and the general 'hubhub' created by people using the site does not materially impact on the amenity of occupiers of surrounding properties. There should be adequate control of noise breakout through doors and windows by effective glazing and acoustic lobbies. Where appropriate, the volume of amplified and live music should be further controlled by sound limiters and/or similar other electronic devices set at levels agreed by the Environmental Health Officer.

5.37 Hammersmith & Fulham Council is the Licensing Authority under the Licensing Act 2003 and is responsible for granting premises licences, club premises certificates and temporary events notices in respect of the provision of licensable activities and personal licences in the borough. The borough's Licensing Policy shall be observed where the proposed development includes licensable activities.

5.38 Where the licensed use of premises gives rise to noise disturbance, the council will take enforcement action in respect of relevant planning conditions and nuisance. In addition, a review of the premises license which could affect the permission for licensable uses may be instigated by the Police, the Environmental Protection team or affected residents.

5.39 The operation of gyms and associate classes commonly requires the generation of high levels of amplified music and speech. Additionally, exercise equipment (such as running machines and weightlifting equipment) and classes can generate significant impact noise, structure borne noise and vibration. New facilities are often proposed for existing commercial buildings that may have been previously been used for office or retail purposes, and which may share party walls and floors with existing residential or other sensitive uses. Combined with the extended operational hours typical of most gyms, without careful planning and upgrading of sound insulation, there is potential for this type of use to cause severe disturbance to adjoining neighbours. A full noise impact assessment, demonstrating how these issues will be addressed, will be required prior to consideration of any application of this type.

5 Noise and Nuisance

5.40 Where entertainment or loud group activities such as singing, chanting etc. take place or music is played at non-residential sites the council will require that associated noise should not be audible at noise-sensitive premises, including their outdoor amenity space at any time.

5.41 At schools and pre-school centres, consideration must be given to protecting the amenity of neighbouring occupiers from noise in outdoor play areas, teaching areas and access routes. Where possible, such areas and routes should be located away from neighbouring noise sensitive premises or be adequately shielded by noise barriers. Outdoor use of school premises by community groups outside school hours is likely to be restricted to minimum hours to prevent disturbance to nearby occupiers.

5.42 Activities in school premises such as music, singing, performances and other loud group activities should be located in well insulated rooms with windows and doors closed, to ensure that associated noise will not be audible at noise sensitive premises.

5.43 Minicab offices adjoining noise sensitive uses will be required to have adequate sound insulation and to keep doors and windows shut to prevent sounds from the use of communication equipment such as 2-way radios etc. being audible at or within noise sensitive premises.

5.44 Where the amenity of occupiers of neighbouring premises could be adversely affected by noise, the council does not normally permit a minicab office to be used by drivers of vehicles in connection with the development nor by any customer of the business, for the purpose of waiting or making/taking orders and instruction, collecting clients, or for the purpose of taking refreshments or using the facilities.

(See Appendix 4 for further guidance)

Industrial sources of noise and vibration

5.45 Noise sources of an industrial type can include industrial operations as well as the use of building services plant and equipment such as air-conditioning, mechanical ventilation, extract systems, commercial refrigeration and other mechanical installations at residential and non-residential premises. A noise assessment and details of mitigation measures, where applicable, must be submitted for the council's approval.

5.46 To prevent breakout of industrial type noise from the use of industrial and commercial premises, the council will require details of adequate sound insulation of the building envelope and separating walls, floors and ceilings. Details shall demonstrate that the industrial use, installation or activity within the building is not normally audible at surrounding or adjoining noise sensitive premises including their private amenity areas.

5.47 Where installations such as condensers, fan units, extract systems and similar fixed plant or equipment are proposed to be installed at external facades, planning permission must be sought.

5.48 Where machinery, ducting or other equipment such as building services, air conditioning, mechanical ventilation or commercial refrigeration systems are installed, they must be mounted with proprietary resilient anti-vibration isolators to prevent vibration noise being transmitted to noise sensitive premises. Fan motors shall be vibration isolated from the casing and adequately silenced. Details of anti-vibration measures shall be included in a noise report.

(See Appendix 4 for further guidance)

Key Principle - NN5

Noise at outdoor events & uses

Outdoor events and uses including recreational and sporting activities and deliveries etc. will need to be assessed in regard to frequency and times of use and the noise level likely to be emitted from activities, music, public address systems, generators, etc.

5.49 Proposed noise sources should be located and directed away from noise sensitive premises. The council may restrict the use and require noise mitigation measures such as sound limiters for amplified sounds, sound barriers and enclosures, as necessary to prevent undue disturbance to the amenity of nearby occupiers, in accordance with relevant legislation, policy, standards and guidance adopted by the council.

5.50 The borough's Licensing Policy shall also be followed where the proposed development includes licenseable activities.

5.51 Where applications include a proposal for outdoor seating at cafes and licensed premises, this may not be permitted or the times of external use of tables and chairs be restricted, based on potential effects of noise on the amenity of neighbouring occupiers. The council will require details of measures to minimise noise from outdoor areas and prevent the use and occupation of tables and chairs outside permitted hours of use.

5.52 Where the amenity of residents would be adversely affected, the disposal of bottles, cans and refuse to external bins or areas of the development and refuse collection should not be carried out during late evenings, night time, nor early mornings.

5.53 Vehicle engines should not be left running while vehicles used in conjunction with the development are stationary.

5.54 A Servicing and Delivery Plan will be required to demonstrate that disturbance from deliveries and collections associated with the use of the premises will be minimised.

Key Principle - NN6

Construction and demolition works

A Demolition Method Statement and/or Construction Management Statement (carried out by a qualified structural or civil engineer) will be required to be submitted alongside applications for basement development, substantial developments and where the site is close to other premises.

5.55 Both the demolition and construction statements should consider issues such as structural stability of adjacent properties, including party walls and foundations, as well as impact on underground services, such as water mains and sewers.

5.56 Basement development can cause disturbance and nuisance for neighbours and surrounding residents which can include noise, vibration and dust from the construction and excavation of basements. Applications will be required to submit a Construction Management Statement.

5 Noise and Nuisance

5.57 For major application sites and other large developments, the Construction Management Statement can be used as a basis for an Application for Prior Consent on Construction Sites, under section 61 of the Control of Pollution Sites. This is a method for which working methods and noise control measures can be agreed with the Noise and Nuisance Team prior to works starting.

(See Appendix 4 for further guidance).

Key Principle - NN7

Environmental pollution

Applications for developments or uses with the potential to emit pollution from lighting, dust, smell, steam, fumes, gases or smoke or other effluent should be submitted with details of the proposed installation and/or use and effective mitigation measures, in accordance with relevant guidance and criteria.

Dust

- **Processes and storage:** developments with potential emissions of dust such as silos and processes involving wood-dust, flour, fibre, plastics, etc. should include the installation, operation, and maintenance of suitable enclosures and filtration plant, with a cut out device to prevent overflowing and escape of dust.
- **Waste, aggregates, etc:** dust emissions from manufacturing, handling and/or storage of waste, aggregates and similar materials should be prevented and controlled by screening, enclosing and sufficiently wetting dusty operations, stock piles and dusty surfaces as well as by implementing a regular cleaning schedule for the site and surrounding areas.
- **Sand blasting:** Operations such as sand blasting may need to be replaced by alternative methods such as chemical cleaning.
- **Demolition and construction:** A demolition method statement and construction management statement will be required for most developments and should include details of appropriate control measures for demolition and construction phases, such as:-
 - enclosures for dust emitting work;
 - preparation work off-site or away from sensitive locations, where possible;
 - screening of the site and of dust emission sources;
 - covering of stockpiles of building materials and waste;
 - using effective water spray on dusty operations and surfaces;
 - wheel washing of vehicles leaving a building site;
 - lorry loads to be covered or enclosed;
 - suitable alternative and/or additional measures, including the use of the River Thames for the transportation of construction and/ or waste materials where feasible.

(See Appendix 4 for further guidance)

Smell, fumes, gases, steam, etc.

5.58 Sources of smell, fumes and steam may include launderettes, dry cleaners, restaurants, take-aways and other commercial or school kitchens, paint spraying/ vehicle repair shops, waste storage and disposal sites, etc.

- Commercial kitchens:

Noise and Nuisance 5

5.59 To prevent adverse effects on the local amenity from cooking smells, applications for cooked-food outlets such as food factories, hotel and school kitchens, restaurants, take-aways, etc. should be submitted together with details of an odour control system including extract ducting, in accordance with the DEFRA 'Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems' 2005, or successive legislation, policy, standard or guidance.

(See Appendix 4 for further guidance)

- Paint spraying, powder coating, vehicle repair shops, dry cleaners etc.

5.60 All paint spraying and powder coating operations should be enclosed in a proprietary booth. Details will be required for approval by the Council of the installation, operation, and maintenance of suitable arrestment/filtration plant, containment and/or an effective extract system serving spray booths, work shops, dry cleaner's, launderettes etc.

5.61 Vehicle spraying facilities and other substantial uses of paint may require a permit under the Environmental Permitting (England and Wales) Regulations 2010 from the Council's Environmental Quality team. Contact environmentalquality@lbhf.gov.uk, tel. 020 8753 3454.

- Waste storage/ disposal/ transfer sites are generally licensed by the Environment Agency, in consultation with the Local Authority, Water Authorities and Health & Safety Executive. Where the Local Planning Authority is consulted on an application for a waste site, requirements may be made for operations to be enclosed or to otherwise contain noise, dust and smell emissions. Contact www.environment-agency.gov.uk, tel 08708 506 506 and environmentalprotection@lbhf.gov.uk, tel. 020 8753 3376.

Lighting

- Floodlights, Security Lights and Decorative Lighting:

5.62 Artificial light is essential in our modern society. It has many uses including illumination of streets, roads and hazardous areas for security, to increase the hours of usage for outdoor sports and recreation facilities and to enhance the appearance of buildings at night.

5.63 The increased use of lighting, however, can cause light pollution from light in the wrong place at the wrong time. This can be intrusive or cause sky-glow from upward light or glare due to incorrectly angled lighting and impact on residents quality of life and wildlife.

5.64 Lighting levels and positioning of floodlights, security lights and other lighting installations will be required to conform to the recommendations of the Institution of Lighting Professionals in the 'Guidance Notes For The Reduction of Light Pollution 2011 or successive legislation, policy, standard or guidance.

(See Appendix 4 for further guidance)

- Illuminated signs and advertisements:

5.65 Illumination should not be intermittent and there should be no changing light pattern. The council may also require that there will be no moving parts in either the structure or in the advertising content of the advertisement.

5.66 Details of lighting levels should be submitted before display of illuminated signs and advertisements, demonstrating compliance with the recommendations of the Institution of Lighting Professionals "Guidance Notes For The Reduction Of Light Pollution 2005, 'Technical Report No 5, 1991 - Brightness of Illuminated Advertisements" or successive guidance, legislation, policy or standard

(See Appendix 4 for further guidance)

5 Noise and Nuisance

6 Air Quality

6.1 Air quality can be a material consideration in the determination of a planning application. It is important that the planning process ensures not only that new development proposals do not have detrimental impacts or introduce unacceptable levels of new exposure, but also that wherever possible, they help to improve local air quality. It is important for air quality issues to be considered early in the planning process and to be assessed in detail where necessary as mitigation measures may be required to reduce emissions and reduce exposure as highlighted by the Air Quality Commission in its 2016 report.

Policy Context - Air Quality

National Policy

National Planning Policy Framework (NPPF) Paragraph 124 states: Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.

London Plan

The London Plan Policy 7.14 Improving Air Quality states that developments should: (a) minimise increased exposure to existing poor air quality and make provision to address local problems of air quality (particularly within Air Quality Management Areas (AQMAs) and where development is likely to be used by large numbers of those particularly vulnerable to poor air quality, such as children or older people) such as by design solutions, buffer zones or steps to promote greater use of sustainable transport modes through travel plans; (b) promote sustainable design and construction to reduce emissions from the demolition and construction of buildings following best practice guidance; (c) be at least 'air quality neutral' and not lead to further deterioration of existing poor air quality (such as areas designated as Air Quality Management Areas (AQMAs)); (d) ensure that where provision needs to be made to reduce emissions from a development, this is usually made on-site and (e) where the development requires a detailed air quality assessment and biomass boilers are included, the assessment should forecast pollutant concentrations. Permission should only be granted if no adverse air quality impacts from the biomass boiler are identified.

Local Plan

One of the council's key strategic objectives is to deliver an environmentally sustainable borough. Local Plan Strategic Objective 14 refers to improving local air quality, particularly in relation to helping to develop sustainable transport networks and reducing congestion. The Environmental Sustainability Vision for the Borough includes a commitment that new developments will also be expected to contribute towards improving local air quality, particularly where they include potentially major new sources of emissions or could significantly increase traffic-generated emissions.

The borough wide policy for Air Quality, which **applies to all proposals for new development which could create potentially adverse impacts on air quality** is contained in **Policy CC10 - Air Quality**. Local air quality is also relevant for **Policy CC1 - Reducing Carbon Dioxide Emissions** and **Policy T1 - Transport**. Therefore advice given in this part of the SPD will also apply to these policies.

6 Air Quality

Key Principle - AQ1

Assessment of Air Quality Impacts of New Development

Requiring all developments which may be impacted by local sources of poor air quality or may adversely contribute to local air quality to provide an air quality assessment that considers the potential impacts of pollution from the development on the site and on neighbouring areas and also considers the potential for exposure to pollution levels above the Government's air quality objective concentration targets. The assessment should include separate consideration of the impacts of (i) the construction/demolition phase of development and (ii) the operational phase of development with appropriate mitigation measures highlighted for each phase.

6.2 A detailed study of air quality impacts from proposed developments will be required for planning applications that:

- Require an Environmental Impact Assessment;
- Require a permit application under the Environmental Permitting Regulations 2010;
- Could have adverse impacts on air quality;
- Could introduce new exposure in areas of poor air quality;
- Could introduce existing sensitive receptors to new emission sources that result in a deterioration of local air quality;
- Include large scale demolition/construction phases.

6.3 The emissions of most concern in H&F are Oxides of Nitrogen (NO_x) and Particulate Matter, particularly the smallest particles (PM_{2.5}, PM₁₀). The whole borough is currently an Air Quality Management Area for Nitrogen Dioxide (NO₂) and PM₁₀ and the council has an Air Quality Action Plan in place which aims to help reduce levels of these pollutants sufficiently to meet the Government's National Air Quality Standards. For further details on air quality issues in H&F, please see www.lbhf.gov.uk/environment/pollution-and-air-quality/air-quality-and-monitoring

6.4 Typical sources of emissions of NO₂ and PM₁₀ in new developments include traffic associated with the development, whether this is private car use for largescale developments or emissions from larger vehicles such as HGVs which may be associated with industrial or commercial developments. New buildings are also a source of emissions from their heating systems (and cooling systems) which are likely to be based on combustion technologies. Industrial type developments could also be a source of emissions from on-site activities or specialist plant - e.g. PM₁₀ emissions from waste transfer stations.

6.5 For some proposals, most likely major developments, the scale of development will mean that detailed air quality impacts should be assessed and provided with the application. For some developments, e.g. smaller developments, it is considered to be acceptable to use a screening model to assess potential impacts and then progress to a more detailed assessment if the screening results show that adverse impacts on local air quality could be caused by the development. Guidance on appropriate models to use to assess air quality impacts can be found in the London Councils' Air Quality and Planning Guidance, 2007, Land-use Planning & Development Control: Planning for Air Quality. v1.2. Institute of Air Quality Management, London, January 2017.

6.6 Some new developments also create an issue in relation to introducing new exposure into areas where the Government's Air Quality Standards are not being met and may continue to be breached. Developments such as schools, nurseries, hospitals and care homes for the elderly and also new housing are more sensitive to the potential impacts of poor air quality. Therefore if such developments

are proposed in areas with elevated pollution levels above the national standards, then the applicant will be required to provide an air quality assessment of that exposure and show how exposure levels will be reduced to acceptable levels.

6.7 Some assessments may need to look at both the associated emissions and exposure potential, whereas others developments that will have only a minimal air quality impact (e.g. a car free development with low emission energy strategy) will only need to assess exposure issues if it is planned for an area of poor air quality. Householder scale proposals will not be required to provide air quality assessments.

6.8 Policy CC10 of the Local Plan also recognises that new developments are not only sources of emissions and potential impacts once they have been built and are occupied and operational, but also during their construction and any demolition phase. Air quality assessments need to provide separate assessment of the demolition/phase on local air quality and propose mitigation measures where required to control and minimise impacts. Further guidance on how to minimise dust and emissions from construction/demolition works can be found in the GLA's SPG on these matters. The 2014 IAQM Guidance on the assessment of dust from demolition and construction is also a useful reference document.

6.9 Air quality assessments for developments in their operational phase should assess impacts in terms of the additional emissions of NO₂ and PM₁₀ that the development is responsible for as well as showing the expected impacts of these emissions on local concentrations of these pollutants. If there are sensitive receptors in the vicinity - or if the proposed development itself included such receptors - then the assessment should model likely impacts on NO₂ and PM₁₀ concentrations at these specific locations. Where the assessment shows that there is a risk of exceedences of the NO₂ or PM₁₀ national standards, then suitable mitigation measures must be proposed to reduce exposure to an acceptable level.

6.10 There are three basic steps to assessing the relative impacts of proposed developments:

- Assess the existing air quality situation in the study area (existing baseline);
- Predict the future air quality without the development in place (future baseline);
- Predict the future air quality with the development in place (with development).

6.11 As well as assessing traffic emission impacts, other sources such as energy centres and plant rooms or industrial processes etc should also be assessed if they form part of a development's proposals.

6.12 Details of the air quality assessment should be compiled in a report which should contain the following information:

- Details of the Proposed Development – a brief description of the development, including identification of expected traffic changes and any other on-site sources of emissions; identification of local receptors such as residential properties close to and within the proposed development.
- Details of Relevant Air Quality Standards/Objectives – a brief summary of the pollutants included in the assessment and the relevant standards and objectives.
- Details of the Assessment Method – a description of the assessment method used, including the model assumptions made and input data used – e.g. traffic data; emission data; meteorological data; baseline pollutant concentrations; choice of baseline year/future year and other relevant input parameters used. Details of model verification should also be supplied.
- Details of the Assessment Results – information on the modelling outputs should be included to enable assessment of the relative impacts of the proposed development. As a minimum requirement, the following should be included:

6 Air Quality

- Impacts of the demolition and construction phase of the development for on-site and off-site receptors;
 - Dust Risk Assessment for demolition and construction phases of the development in accordance with Mayor Of London SPG;
 - Details of the emissions from the development and a comparison of how this compares with the existing development;
 - Impact that changes in emissions will have on ambient air quality concentrations;
 - Any exceedences of the air quality objectives caused by the development, or any worsening of a current breach;
 - Consideration of whether any of the council's Air Quality Action Plan measures could be compromised by the development.
 - A demonstration that the proposal complies with 'air quality neutral' requirements
 - Dispersion modelling outputs of emissions of NO₂ and PM₁₀ from vehicles, and combustion plant;
 - Stack Height analysis including D1 calculations from ground level to inform the height of any energy plant chimneys.
- The validation and verification of the results and analysis of a minimum of 6 months of on-site air quality monitoring at all heights from ground floor to roof level to support design proposal and demonstrate compliance with the council's Local Plan Policies and London Plan policies on air quality.
 - Details of Mitigation Measures – where identified as necessary, information of the mitigation measures planned to cut emissions during construction/demolition phase and the operational phase of developments should be included in the assessment. This needs to be in accordance with chapter 5 (paragraph 5.10, 5.14, 5.15) of the guidance document Land-use Planning & Development Control: Planning for Air Quality. v1.2. Institute of Air Quality Management (2017). Further details on mitigation is provided in the next section.

6.13 The Low Emission Strategies Partnership: www.lowemissionstrategies.org provides advice on how large developments can minimise their air quality impacts, particularly in relation to reducing traffic emissions.

6.14 Development proposals should ensure that where provision needs to be made to reduce emissions, that these are made on-site where possible. If this is not feasible, wider measures with equivalent air quality benefits may be required, either on a scheme by scheme basis or through joint area based approaches.

Key Principle - AQ2

Mitigation of Emissions caused by New Developments

Requiring mitigation measures to be implemented to reduce emissions, particularly of Nitrogen Dioxides and small particles, where assessments show that developments could cause a significant worsening of local air quality or contribute to the exceedences of the Governments air quality objectives.

6.15 Emissions from new development proposals should be reduced through the use of on-site mitigation measures to ensure that local air quality is not impacted significantly. Consideration of how to minimise emissions for the development once operational should start in the early design phase, in conjunction with considering measures that may be required to also reduce exposure. See the GLA's 2013 Manual B – Minimising air pollution from new developments for further information. Details of the proposed mitigation measures should be provided in the Air Quality Assessment.

6.16 Examples of measures that help to reduce emissions from buildings and associated plant and equipment and also traffic include:

- Use the 'Low Energy Building Design' concept that only use non-combustion energy air quality neutral technologies
- Encourage developments which generate a high number of trips into areas of high public transport accessibility
- Minimise the number of parking spaces
- Include vehicle recharging points to encourage and incentivise the use of electric vehicles
- Include electric/hybrid car club bays
- Incentivise the use of ultra low emission vehicles (electric/hybrid) by use of NOx emissions based parking incentives
- Provide secure cycle parking (and changing facilities and cycle lanes where appropriate)
- Provide safe pedestrian routes
- Encourage use of public transport
- Provide and implement a detailed Travel Plan, including provisions to measure its implementation and effectiveness
- Minimise building emissions from on-site energy centres and other combustion plant (see Key Principle AQ5 below for further information)
- Where appropriate, minimise emissions to air from other processes or industrial plant that may be included on-site through use of best practice measures to prevent or minimise emissions.
- Use of Ultra Low Emission Vehicles i.e. electric, hybrid vehicles to deliver materials to the site during the construction/demolition phases
- Integrate Green infrastructure in accordance with the recommendations of the guidance 'Air Pollution Abatement Performances of Green Infrastructure in Open Road and Built-up Street Canyon Environments' – A Review. *Atmospheric Environment*, 2017.

6.17 In terms of reducing emissions from combustion plant, ultra low NOx plant should be specified so that emissions standards such as those outlined in Key Principle AQ5 can be achieved without the need for external NOx abatement technology. Where this is not possible, the option of integrating external NOx abatement technology, such as Selective Catalytic Reduction (SCR) will be required to reduce NOx emissions.

6.18 Measures aimed at minimising transport emissions may form part of the Transport Assessment. Where this is the case, these should either be referenced or reproduced in the Air Quality Assessment. Similarly, if mitigation measures are outlined in the Energy Assessment to show how a new energy centre of communal heating system etc will minimise emissions, this information should also be included in the Air Quality Assessment.

6.19 The Low Emission Strategies Partnership: www.lowemissionstrategies.org provides advice on how large developments can minimise their air quality impacts, particularly in relation to reducing traffic emissions. The Institute of Civil Engineers has also produced a report into civil engineering solutions to London's air pollution (See www.ice.org.uk)

6.20 Development proposals should ensure that where provision needs to be made to reduce emissions, that these are made on-site where possible. If this is not feasible, wider measures with equivalent air quality benefits may be required, either on a scheme by scheme basis or through joint area based approaches. See related Key Principle AQ4 for further guidance on achieving the 'air quality neutral' requirement.

6.21 Emissions during the construction/demolition phase should also be controlled and minimised, with details of the proposed mitigation measures provided in the Air Quality Assessment. Further guidance on requirements in relation to Demolition Method Statements and Construction Management

6 Air Quality

Plans are provided in Appendix 4. The GLA's SPG on the Control of Dust and Emissions during Construction and Demolition provides guidance on the following and should be used to help develop appropriate mitigation schemes:

- Preparing an Air Quality Statement for construction and demolition activities, including Air Quality (Dust) Risk Assessments (AQDRAs)
- The stages of development the Air Quality Statement is to cover: demolition, earthwork, construction and 'trackout' (vehicles leaving the site)
- Identifying the potential scale (large, medium, small) of dust emissions for each stage of work
- Identifying the level of risk due to the scale of dust emissions on health, 'soiling' (dirt) and the natural environment
- Best practice methods for controlling dust on-site and to prevent 'trackout'
- Recommendations for monitoring
- Notification of standards for non-road mobile machinery

6.22 Hammersmith & Fulham is located within the Non-Road Mobile Machinery (NRMM) Low Emission Zone which means that during the construction/demolition phase, that machinery that complies with the emissions requirements outlined here: <http://nrmm.london/> will need to be complied with. It should be noted that for the majority of construction sites in the borough, compliance with the Stage IIIB NRMM emission criteria of Directive 97/68/EC and its subsequent amendments will be expected.

6.23 Emissions from vehicles delivering construction materials and removing waste should be minimised and where feasible, the river should be used to transport construction materials and waste.

Key Principle - AQ3

Mitigation of Exposure caused by New Development

Requiring mitigation measures that reduce exposure to acceptable levels where developments are proposed that could result in the occupants being particularly affected by poor air quality.

6.24 If a development is planned in a location where the air quality assessment predicts exceedences of the Government's air quality objectives then measures will be required to mitigate these impacts and reduce exposure for the new development to an acceptable level. This is particularly important where a development is introducing a sensitive use such as new housing or uses where vulnerable groups will be present such as hospitals, schools, nurseries or care homes and outdoor amenity areas.

6.25 As for mitigating emissions from new developments, the mitigation of exposure needs to be considered early on in the design process for new developments. Consideration should be given to the characteristics of the site so that if there are particular elements that are more sensitive to pollution, then these can be suitably located, designed and orientated to minimise exposure.

6.26 Open spaces or planting (trees and/or bushes etc) can also be considered for inclusion as a 'buffer zone' between busy roads and new developments. This helps because concentrations of NO₂ and PM₁₀ reduce with increasing distance from the road and plants provide surfaces for PM₁₀ in particular to settle on, removing them from the air. In mixed use developments, it helps if the ground floor is used for office/retail/ commercial uses etc with residential properties located on higher floors away from air pollution at ground level as concentrations of NO₂ and PM₁₀ reduce with height. Where possible, the use of native plants should be prioritised as these are likely to provide increased biodiversity benefits over non-native invasive species.

6.27 Where possible, opening windows should be located on the side of buildings which are not directly adjacent to the main source of pollution. Similar considerations should be given to locating air intakes where ventilation systems are required. Air intakes should also be located as high as possible (e.g. roof height). Mechanical ventilation systems may need to include NO_x and PM₁₀, PM_{2.5} pollution filters if locating of intakes away from the source of pollution is not in itself adequate or practical to provide air that does not breach the Government's air quality standards.

6.28 In areas of exceedance of the Air Quality objectives for NO₂ and PM₁₀, the ventilation strategy for new habitable accommodation would need to comply with Standard 33 of the 2016 GLA Housing SPG and Policy 7.14 of the London Plan which states: "*Minimise increased exposure to existing poor air quality and make provision to address local problems of air quality : be at least 'air quality neutral' and not lead to further deterioration of existing poor air quality (such as areas designated as Air Quality Management Areas (AQMAs))*". Paragraph 2.3.49 of the Housing SPG states "*Where schemes cannot have openable windows due to poor air quality or noise restrictions, careful consideration needs to be given to the location of air intake units and any increased potential for overheating in the summer due to the reduced opportunities for natural ventilation*".

6.29 It is recommended that the following is considered as part of the design mitigation for air quality:

- The bedrooms and the living rooms of the habitable accommodation are orientated away from the main sources of poor air quality e.g main roads adjacent to the development.
- There are no balconies or residential amenity/roof terraces on the elevations of the building located adjacent to main sources of poor air quality to comply with policy CC10
- The fresh air intake for habitable accommodation should be located at the rear at roof level (there should be no fresh air intakes on any elevations on highly trafficked roads). Care will need to be taken to locate the inlets for the ventilation away from any local sources such as boiler flues and kitchen vents.
- Avoid contamination of the fresh air intake supply, design the ventilation system of the residential units to ensure that all the extracts for the ventilation system are located on the front elevations of the buildings.
- Where pollution levels are high (e.g. in street canyon locations) residential units should be located at higher than ground floor level where possible to help reduce exposure to traffic emissions.

6.30 Air Quality Assessments should include an indication of the locations and where possible number of people that could be exposed to poor air quality as a result of the development, provide details of the proposed mitigation measures to be integrated into the development and demonstrate that these will reduce exposure to acceptable levels.

Key Principle - AQ4

Air Quality Neutral Requirements

Requiring developments to be 'air quality neutral' and resist development proposals which would materially increase exceedances of local air pollutants and have an unacceptable impact on amenity or health unless the development mitigates this impact through physical measures and/or financial contributions to implement proposals in the Council's Local Air Quality Management Plan.

6.31 The whole of H&F is an Air Quality Management Area and the council has developed and is implementing a detailed Air Quality Action Plan in order to reduce emissions of NO₂ and PM₁₀ and associated exposure to high levels of pollution. Developments which are judged to have unacceptable air quality impacts - i.e. those that would be responsible for emissions which cause or exacerbate

6 Air Quality

exceedences of the NO₂ or PM₁₀ air quality objectives that cannot be mitigated and/or they create exposure of sensitive groups to NO₂ or PM₁₀ levels above the national objectives, will not be considered to be acceptable and will be refused.

6.32 Developments are required to use the 'air quality neutral' approach to demonstrate that proposed developments will not create unacceptable impacts and help the borough to achieve and sustain compliance with and contribute towards meeting the Government's national air quality objectives. It also means that the cumulative impact from a large number of developments, which may individually have small impacts on air quality, does not lead to a significant but incremental increase in pollution levels, raising background concentrations of key pollutants such as NO₂ and PM₁₀.

6.33 The GLA has established a series of air quality neutral emissions benchmarks which set out acceptable emissions limits for a range of building types and transport. Air quality assessments submitted with planning applications should include an air quality neutral assessment which shows, with reference to the relevant benchmarks, whether or not the proposed development meets the benchmark requirements as a minimum. The benchmarks and further guidance on carrying out an air quality neutral assessment are provided in the GLA's SPG on Sustainable Design and Construction. Further guidance is also available in the Air Quality Neutral Planning Support Update 2014: www.aqconsultants.co.uk Guidance will be updated periodically to take account of technological advances in building and transport emissions improvements over time.

6.34 Where a proposal exceeds the benchmarks and where on-site mitigation measures are not feasible to reduce emissions adequately to achieve the air quality neutral requirements, then alternative proposals will need to be agreed with the council which may include provision of a financial contribution to help fund implementation of local air quality improvement actions as outlined in the Air Quality Action Plan.

6.35 Developments that comply with the benchmarks will be considered to avoid unacceptable increases in NO₂ and PM₁₀ emissions and be considered to be "air quality neutral".

Key Principle - AQ5

Managing Air Quality Impacts of Decentralised Energy Schemes

Requiring all decentralised energy schemes to demonstrate that they can be used without having an unacceptable impact on air quality. Where this is not possible, CHP systems will not be prioritised over other air quality neutral technologies.

6.36 Decentralised energy schemes, often in the form of Combined Heat and Power (CHP) systems can help to reduce energy use and minimise CO₂ emissions where they are feasible for integration into major developments.

6.37 Decentralised energy systems provide heat (and where CHP is included, also electricity) through a combustion process that, in the short-term at least, is likely to use natural gas as the primary fuel source. Their use is supported by the London Plan and its Energy Hierarchy in developing energy strategies for major sites and Local Plan Policy CC1 promotes the use of decentralised energy schemes where they can be used without having an unacceptable impact on air quality. This approach is supported by Policy CC10 which does not allow the inclusion of CHP if its use will have an unacceptable impact on air quality.

6.38 The main pollutant of concern from gas powered energy systems is NO₂. As highlighted above, where new developments propose new sources of emissions such as energy centres or plant rooms that house communal heating systems, an Air Quality Assessment should be carried out to show the expected impacts of the emissions and where necessary provide details on any mitigation measures

that are required to reduce emissions to an acceptable level. Schemes including communal heating schemes will also need to comply with the air quality neutral requirements outlined above in Key Principle AQ4.

6.39 If an energy scheme is proposed that runs on any fuel other than natural gas that could be a potential source of emissions of concern for local air quality (e.g. biomass), then this would also need to comply with this requirement of needing to demonstrate that emissions are acceptable.

6.40 The GLA SPG on Sustainable Design and Construction provides details on acceptable minimum emission standards for a range of combustion systems such as communal heating systems and CHP units which should be complied with, as a minimum. Standards are also provided for biomass boiler systems. Plant proposed within developments is to comply with these standards, in addition to the development meeting the overall 'air quality neutral' benchmarks.

6.41 As a general rule, ultra-low NO_x gas boiler systems should be installed as standard to minimise emissions. If BREEAM is being used to guide the sustainability performance of major non-residential schemes then developers are encouraged to specify plant that achieves NO_x emissions of no greater than 40 mg/kWh (heating plant) and achieve maximum number of credits under category Pol 02 (NO_x Emissions). Achieving these credits should be possible without incurring extra costs for the development.

6.42 If an assessment indicates that unacceptable air quality impacts are still likely to occur even where emission standards are met, then additional measures should be considered in order to reduce emissions further (e.g. increase stack height, use plant that meets more stringent emissions criteria etc). However, where a communal heating proposal still cannot demonstrate compliance with the requirements of this Key Principle, it will not be accepted as part of an energy strategy, even if it does generate large CO₂ reductions for the site. In these circumstances, alternative, low emission energy generation systems will be required such as the 'Low Energy Building Design' concept that only uses non-combustion energy air quality neutral technologies (see <http://www.specific.eu.com/casestudies> for further details).

6 Air Quality

7 Energy

7.1 According to the Energy Saving Trust, buildings account for approximately 50% of UK carbon emissions, split fairly equally between residential and non-domestic buildings. In order for the UK and London to meet their carbon dioxide reduction targets, the council, in its role as local planning authority, therefore requires that new developments, particularly major sites, minimise their emissions. The council also needs to ensure that developments keep improving their performance in terms of energy use and emissions.

7.2 Complying with the Local Plan policies identified in this SPD and implementing the following sustainable energy principles will allow new developments to make their contribution to the UK and London's transition to a low carbon economy.

7 Energy

Policy Context - Energy

National Policy

The Government has set national targets for the reduction of carbon dioxide emissions – a 34% reduction by 2020 and 80% by 2050 (based on 1990 levels). The National Planning Policy Framework (NPPF) makes it clear that the planning system has a key role to play in helping to achieve these targets and the UK's transition to a low carbon economy.

The NPPF states that planning plays a key role in securing radical reductions in greenhouse gas emissions. This is to be achieved through the appropriate location and layout of new development, active support for energy efficiency improvements to existing buildings and the delivery of renewable and low-carbon energy infrastructure. To this end, the NPPF supports local planning authorities in adopting proactive strategies to mitigate climate change, including those that help increase the use and supply of renewable and low-carbon energy. Further details on national policies on sustainable energy and carbon reduction can be found in the NPPF document, paragraphs 148-153.

London Plan

The London Plan includes a number of policies on climate change mitigation aimed at facilitating significant reductions in carbon dioxide emissions from new developments. Key policies include:

- Policy 5.1 Climate Change Mitigation, which sets out the Mayor of London's aim to achieve an overall reduction in London's carbon dioxide emissions of 60 per cent (below 1990 levels) by 2025.
- Policy 5.2 Minimising Carbon Dioxide Emissions, which sets targets for major development proposals to make the fullest contribution to minimising carbon dioxide emissions in accordance with the energy hierarchy.
- Policy 5.3 Sustainable Design and Construction, which includes a reference to minimising carbon dioxide emissions across development sites, including the building and services (such as heating and cooling systems).
- Policies 5.5 Decentralised Energy Networks and 5.6 Decentralised Energy in Development Proposals, which promote the use of localised decentralised energy systems.
- Policy 5.7 Renewable Energy, which seeks to increase the proportion of energy generated from renewable sources
- Policy 5.9 Overheating and Cooling, which seeks to reduce the impact of the urban heat island effect in London and encourages the design of places and spaces to avoid overheating and excessive heat generation.

Local Plan

The council's Spatial Vision for the borough includes an aspiration that by 2035, H&F will be the greenest borough which includes the need for new buildings to be energy efficient, reduce CO2 emissions and to support the move to a low-carbon economy. Major developments in the borough will be promoted as zero carbon exemplars.

Local Plan **Policy CC1 Reducing Carbon Emissions requires developments to make the fullest possible contribution to the mitigation of climate change** through the implementation of energy conservation measures to meet the London Plan carbon reduction targets, including for major residential developments to be zero carbon.

Policy HO4 Housing Quality and Density also includes reference to the council expecting all housing developments to be well designed and energy efficient. **Policy HO11** Detailed Housing Standards requires sustainable energy measures in new housing developments. **Policy DC3** on Tall Buildings also includes a requirement for tall buildings to be designed to be minimise energy use.

Major Developments

Key Principle - EN1

Implement and Achieve London Plan Policies and Targets

Implementation of the London Plan (2016) sustainable energy policies and meeting the associated carbon dioxide (CO₂) reduction targets.

7.3 The London Plan sets out detailed policies on how new major developments should be designed to minimise energy use and maximise reductions in emissions of CO₂. Energy Strategies should be developed in accordance with the Energy Hierarchy outlined in London Plan Policy 5.2:

1. Be lean: use less energy
2. Be clean: supply energy efficiently
3. Be green: use renewable energy

7.4 The first step in the hierarchy, to use less energy should be met through the integration of passive design and energy efficiency measures such as improved insulation levels, increased airtightness performance etc; the second step, to supply energy efficiently, can be met by including decentralised energy systems where this is feasible. The third and final step of the hierarchy is the inclusion of on-site renewable energy generation.

7.5 Policy 5.2 of the London Plan sets out CO₂ reduction targets that major developments must meet. This includes a requirement for major residential developments to achieve zero carbon performance. Major non-residential developments are currently required to reduce emissions by a minimum of 35% compared to the 2013 Building Regulations.

Key Principle - EN2

Ensuring the Use of Passive Design and Supplementing BREEAM Assessments with Energy Assessments

Ensuring developments are designed to make the most effective use of passive design measures, and where an assessment such as BREEAM (or equivalent) is used to determine a development's environmental performance, this must be supplemented with a more detailed Energy Assessment in order to show compliance with the London Plan's CO₂ reduction targets.

7.6 Using less energy is the 1st step of the energy hierarchy. The Building Regulations drive improvements in the energy performance of buildings by setting minimum standards on the heat loss through the main building fabric and set limits on the amount of energy that should be used for heating, hot water and lighting.

7 Energy

7.7 Energy use can be minimised by the inclusion of passive design measures, which should be considered at the earliest design stage for developments to ensure that factors such as site layout, building design and orientation are optimised where possible to help reduce energy demand.

7.8 The use of natural daylight and solar gain - without encouraging overheating - can help to reduce energy use on lighting and space heating. The use of natural ventilation is also encouraged where possible, unless other environmental factors such as high noise levels and poor air quality prevent this.

7.9 BREEAM and other environmental assessment methods are frequently used to guide the sustainability performance of new developments. These include a number of energy related indicators on energy efficiency, low carbon design, energy monitoring etc, and achievement of certain levels of performance under these criteria can help contribute towards attaining certain levels of overall performance for a development - e.g. BREEAM "Excellent". Whilst the use of BREEAM and other assessment methods is encouraged, their requirements do not exactly mirror the London Plan targets, so where submitted they will need to be supplemented with a more detailed Energy Assessment that fully demonstrates compliance with these, including the zero carbon target for major residential developments.

Key Principle - EN3

Requirement for Energy Assessment

Requiring energy assessments for all major developments to demonstrate and quantify how the proposed energy efficiency measures and low/zero carbon technologies will reduce the expected energy demand and CO2 emissions.

7.10 All major development proposals are required to submit an Energy Assessment as part of the planning application supporting documents. The Energy Assessment should show how the London Plan's energy hierarchy has been implemented to achieve the necessary CO2 reduction targets, as outlined above.

7.11 The minimum requirements in terms of information that should be provided in an energy Assessment are provided in the GLA's "Energy Planning" guidance document, available online. Assessments should comply with the following requirements:

- Be submitted at the planning application stage
- Commit to reducing regulated CO2 emissions below those of a Part L 2013 of the Building Regulations compliant development through energy efficiency measures alone
- Include information demonstrating that the risk of overheating has been mitigated through the incorporation of passive design measures
- Demonstrate that connection to existing or planned district heating networks has been prioritised where feasible
- Where feasible, integrate a site wide heat network and commit to allowing connection to future district heating networks in the area
- Commit to a single energy centre to supply site wide heat networks, where proposed
- Include CHP systems where these are feasible and can be designed and installed for use without causing unacceptable impacts on local air quality
- Integrate renewable energy generation where this is feasible for the site
- Show that the London Plan CO2 reduction targets have been met through on-site measures where possible
- State how any shortfall in meeting the CO2 reduction targets on-site will be met.

7.12 If the Energy Assessment demonstrates that the required CO2 emissions reductions cannot be achieved on-site, the council will require any shortfall to either be provided off-site (e.g. by installing sustainable energy measures elsewhere in the borough) or if this is not feasible, then for a cash in lieu payment to be made which the council will use to secure the required carbon dioxide savings elsewhere in the borough.

Key Principle - EN4

Connecting to or Integrating Heating/Cooling Networks or Decentralised, Communal Systems

Requiring major developments to demonstrate that their heating and/or cooling systems have been selected to minimise CO2 emissions. This includes the need to assess the feasibility of connecting to any existing decentralised energy systems or integrating new systems such as Combined (Cooling) Heat and Power units or communal heating systems, including heat networks if this can be done without having an unacceptable impact on air quality.

7.13 Heating (and where included, cooling) systems are a major source of energy use and associated CO2 emissions in new developments. In line with the 2nd step of the Energy Hierarchy, once energy demand has been minimised, the next step is to demonstrate how the chosen energy system(s) have been selected in line with the London Plan's preference for decentralised energy use, where this is feasible.

7.14 If a major development is proposed for a location where there is an existing heating or cooling network, then connection to this should be explored and proposed, where this is viable. If there are no existing networks, the next preference is for a site wide Combined Heat and Power (CHP) or Combined Cooling, Heat and Power (CCHP) system to be installed, where the baseline heat demand makes this an efficient and viable option. If a CHP/CCHP system is not feasible for the site, then a communal heating (and cooling, where required) system should be proposed for the site.

7.15 Where a new CHP/CCHP system is deemed to be viable, the developer should also assess the feasibility of whether there is any potential to extend the system beyond the site boundary to adjacent sites. Where future network opportunities are identified, proposals should be designed to connect to these networks.

7.16 Any decisions made with regard to choosing an appropriate heating/cooling system for major developments must take account of Policy CC1's requirement that such systems can only form part of an Energy Strategy if they can be used without having an unacceptable impact on air quality. Air quality impacts of new heating/cooling systems that are based on combustion processes such as those burning natural gas will need to have their emissions assessed, as required by Local Plan Policy CC10. Development proposals should be at least 'air quality neutral', not lead to further deterioration of existing poor air quality (such as areas designated as Air Quality Management Areas (AQMAs)), and create opportunities to improve local air quality. They should minimise exposure to existing poor air quality and make provision to address local problems of air quality - particularly within AQMAs such as H&F. Further details on the 'air quality neutral' concept can be found in the GLA's SPG on Sustainable Design and Construction.

7 Energy

Key Principle - EN5

Integrating Renewable Energy

Using on-site renewable energy generation to further reduce CO2 emissions from major developments, where feasible.

7.17 As required by the 3rd step of the Energy Hierarchy, Energy Assessments should include feasibility assessments for a range of renewable energy technologies to show which ones would be viable for the development. Where feasible, major developments are expected to integrate some form of on-site renewable energy generation, even if by following the first 2 steps of the Hierarchy, the 35% on-site CO2 reduction target has been achieved.

7.18 Where heat is already to be supplied by CHP, it is important that any proposed renewable technologies complement and do not compete with CHP. For example, solar thermal (hot water) is not considered compatible with CHP as they both supply base heat demands, however the use of solar PV panels generating electricity would be considered to be compatible.

Key Principle - EN6

Payment in Lieu Requirement

Where it is not feasible to make the required CO2 reductions by implementing these measures on-site or off-site as part of the development, a payment in lieu contribution should be made to the council which will be used to fund CO2 reduction measures in the borough or elsewhere in London.

7.19 The introduction of the zero carbon homes requirement for major residential developments means that there will be an increasing need for developers to either put forward proposals to generate CO2 savings off-site or to make a payment in lieu to the council. Major residential developments are required to achieve at least a 35% reduction in regulated CO2 emissions (beyond the minimum requirements of the 2013 Building Regulations). The remaining regulated CO2 emissions, up to 100%, should be off-set by making a cash in lieu contribution to the council which will be used to fund CO2 savings elsewhere in the borough. Where major non-residential developments cannot reach the 35% target on-site, they will also be required to make off-site arrangements to offset the remaining CO2 emissions or make a payment. The current figure used to calculate the payment in lieu is £60/tonne of CO2 for a period of 30 years - i.e. £1,800 per tonne of CO2 to be offset.

Minor Developments

Key Principle - EN7

Carbon Reduction in Minor Developments

Encouraging energy efficiency and other low carbon measures in all other (i.e. non-major) developments, where feasible.

7.20 The main requirements outlined in this section apply to major developments, however some of the measures outlined above are also viable in smaller scale developments, particularly the integration of energy efficiency measures and in some case the use of renewables. These are encouraged for all other developments where they can be integrated without breaching the requirements of other Local Plan policies - e.g. particularly those relating to design and conservation matters.

All Developments

Key Principle - EN8

Encourage Use of PassivHaus to Guide Development Design

The council will also encourage developers to use energy performance standards such as Passivhaus to guide development of their Energy Strategies.

7.21 The use of stringent energy performance standards such as Passivhaus are encouraged as these promote very high levels of energy efficiency and low energy use and therefore also reduced CO2 emissions. Although construction costs associated with designing and constructing developments to meet the Passivhaus standard maybe higher than standard costs, these can be offset by lower heating costs.

7 Energy

8 Contamination

Contamination is most likely to arise from the previous use of a site or an adjoining site which has previously been used for industrial activities or has been infilled such as waterways and brickfields.

The actual or possible presence of contaminated land is a material planning consideration and places responsibility on owners/developers to establish the extent of any potentially harmful materials on their site and ensure that it is safe and suitable for its permitted use.

In a heavily built up borough such as Hammersmith & Fulham where there has been a long history of heavy and light industry, contamination is known to exist. It is therefore important that any land that is known or suspected of being contaminated or where a sensitive use is proposed is dealt with before the development takes place.

8 Contamination

Policy Context - Land Contamination

National policy

The NPPF (2012) identifies the need to address the issue of potentially contaminated land through the planning process. (Para's 109,110,111, 120,121 & 123 are of relevance). The NPPF states that the planning system should ensure that new and existing developments are not put at unacceptable risk from or are not adversely affected by soil pollution and that remediation will be undertaken where appropriate. It goes on to state that planning policies and decisions must ensure that a site is suitable for its proposed use, taking account of ground conditions and that as a minimum, after remediation land cannot be capable of being determined as "contaminated land" under Part 2A of the Environmental Protection Act (EPA) 1990. This link to the EPA is reflected in the Contaminated Land Statutory Guidance (2012) which identifies the planning system as a key process to address land contamination.

The National Planning Practice Guidance on land affected by contamination also contains some useful guidance for applicants which should be considered. This includes background on the link between the EPA and the NPPF as well as advice for applicants on when to consider land contamination as well as outline applications and planning conditions which relate to land contamination issues.

The developer should be aware that actions or omissions on their part could lead to liability being incurred under Part 2A of the EPA. Where an agreed remediation scheme includes future monitoring and maintenance schemes, arrangements will need to be made to ensure that any subsequent owner is fully aware of this requirement and assumes ongoing responsibilities that come with the land.

The successful assessment (and where necessary, remediation of land) should provide the necessary confidence to owners and occupiers of land, after development, about its condition and hence its standing in relation to relevant environmental protection regimes including Part 2A of the EPA 1990.

Along with local authorities, the Environment Agency (EA) is the Government's enforcing body in addressing contaminated land where controlled waters may be affected. The EA also function as a statutory consultee and has published Guidance for the Safe Development of Housing on Land Affected by Contamination.

London Plan

London Plan Policy 5.21 is concerned with the remediation of land affected by contamination. Further policies address related issues including water quality (Policy 5.14 Water Quality and Wastewater Infrastructure); soil and aggregate waste generated as part of redevelopment or remediation (Policy 5.16 Waste Self-sufficiency, Policy 5.19 Hazardous Waste and Policy 5.20 Aggregates); dust produced during redevelopment and movement of vehicles transporting soil waste (Policy 7.14 Improving Air Quality); and, the reuse of material generated during remediation (Policy 5.3 Sustainable Design and Construction).

Local Plan

The Council's Local Plan Policy CC9 sets out the requirements for contaminated land. The Policy states that any land known to be or suspected of being contaminated or where a sensitive use is proposed, is dealt with before the development takes place. In these circumstances, the applicant should carry out a site assessment and submit a report of the findings to the Council in order to establish the nature and extent of the contamination.

Contaminated land issues are also relevant to a number of other policies in the Local Plan, including Policy CC2 on sustainable construction, Policies CC6 and CC7 on waste, Policy CC8 on hazardous substances, Policy CC3 on minimising flood risk and reducing water use and Policy CC13 on polluting uses. The other sections of the Planning Guidance SPD provide further guidance on these policies.

Further guidance and legislation

8.1 Alongside planning, there are a number of legislative and guidance documents which control the development of potentially contaminated land or the development of land for a sensitive use as well as other relevant pollution matters. This includes:-

- **Part 2A of the Environmental Protection Act (EPA) 1990** - requires local authorities together with the Environment Agency to identify and remediate contaminated land. Part 2A addresses the need for remediation based on the current use of the site, as opposed to planning which focuses on the future or proposed use. Paragraph 121 of the NPPF states that 'after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990'. In most cases, the enforcement of remediation is imposed through planning permissions and relevant conditions rather than through Part 2A. For further information about this regime please refer to the Council's Part 2A Inspection Strategy.
- **Defra Guidance** - The Department for Food, Environment and Rural Affairs (Defra) is the Government's regulatory body for contaminated land and has provided guidance in addressing contaminated land published as Contaminated Land Report 11 (CLR11) Model Procedures for the Management of Land Contamination. An overview of and link to these procedures is given in Defra's Land Contamination: risk management guidance (2016).
- **Environment Agency Guidance**-The Environment Agency is responsible for the protection of controlled waters (both ground and surface waters) and suitable guides can be downloaded from their website (add link)
- **Building Control Regulations** - this regime also includes the consideration of land affected by contamination. Building Control guidance under the Building Act 1984 is contained in Approved Document C (2004 with 2010 amendments is the current version). The relevant Building Control regulations and guidance should be considered at the time of development. The requirements of this regime are to secure the health and safety of persons in and about a building and safeguarding them and the building against adverse effects from both on-site and off-site, man-made or natural sources of contamination.
- **Demolition Notices** - unacceptable risks from contamination are also a consideration with regards to demolition notices given to the council under section 80 of the Building Act 1984. This Notice is required outside of, and in addition to the planning regime. Where notice is received by the council that demolition is to take place at a site where an unacceptable risk from land affected by contamination may exist, the council will serve a counter notice with conditions that these risks are addressed prior to demolition commencing.

Land Contamination in Hammersmith & Fulham

8.2 The existence of pollutant linkages is dependent upon local conditions and may be preliminarily assessed by evaluating the known:

- potential sources determined from the current and historical use of a site and surrounding area;

8 Contamination

- the pathways determined from local geology, surface and groundwater and built attributes of a site and surrounding area; and
- potential receptors determined from the local geology, surface and groundwater and users of the site and surrounding area.

Further detailed borough specific information, including examples of pathways and effects from land contamination as well as examples of potentially contaminated land and situations where land may be contaminated can be found within Appendix 3.

Key Principles - Land Contamination

Key Principle - LC1

Planning process - land contamination

As contamination is a material planning consideration, applications will be determined taking into account the sensitive nature of the development and any known or suspected contamination, including applying and enforcing any necessary conditions.

Developers will also need to consider the level of information required to be submitted for different types of planning applications (outline & reserved matters) and the scope of Environmental Impact Assessments in considering land contamination.

8.3 Such conditions may require that land is investigated and remediated in the course of development to an appropriate standard, taking account of its intended use, and that, if necessary, it is properly maintained thereafter.

Environmental Impact Assessments

8.4 Developers should be aware that any Environmental Impact Assessment and associated Environmental Statement (ES) that may be needed as part of the planning approval process have a more limited purpose and scope to contaminated land assessments and accordingly cannot be used as a substitute for the preparation of a contaminated land assessment.

8.5 An ES that aims to ensure that the likely significant environmental effects of a proposed development and the measures proposed to mitigate those effects are fully understood and are taken into account before development is allowed to proceed. The scope of the ES is limited to the requirements detailed in the relevant Town and Country Planning (Environmental Impact Assessment) Regulations. It may not therefore provide comprehensive information about the existing condition of the land, including whether the site is contaminated. Such information would be provided only to the extent that it is relevant to the environmental effects of the development itself or to the means by which the development is to be carried out. An ES is, therefore, by itself, no guarantee that the potential for contamination at a site to affect the proposed development has been fully assessed.

8.6 For example, a proposal to cover a site with inert material to isolate the surface from underlying contaminants and allow development to proceed would not necessarily have significant environmental effects. However, it would not deal with what may already be significant ongoing pollution of groundwater arising from substances migrating from the contaminated materials into the saturated zone or other water resources. Such pollution could result in the land being identified as contaminated under Part IIA of the EPA 1990, which would be a material planning consideration not covered by the ES.

8.7 Therefore, in order for an ES to be the sole source of information on the consequences of development of a potentially contaminated land site, it will need to consider the effects of the proposed development and the implications of the existing condition of the site. This may be achieved by adhering to Policy LC4 in this document.

Outline Application

8.8 Where Outline Applications are made, the council will need to be satisfied that any risks from land potentially affected by contamination have been properly assessed and, if there is an unacceptable risk, the options appraised sufficiently to identify a viable remediation scheme that will reduce the risks to acceptable level, just as it would with a full application.

8.9 Outline permissions will not be granted until the council is satisfied that it understands the contaminated condition of the site and that the proposed development is appropriate as a means of remediating it. Consideration will be given by the council to the placement of planning conditions on a case by case basis.

8.10 Extreme caution is taken by the council in the granting of outline planning permission. The council must be satisfied that it has sufficient information from the applicant about the condition of the land and its remediation and the full range of environmental impacts arising from the proposals to be able to grant permission in full at a later stage. A grant of outline planning permission that cannot be sustained at the detailed approval stage because it becomes apparent that the necessary remediation is not viable or practicable or because the ES (where EIA is required) demonstrates unacceptable adverse impacts could leave the council vulnerable to a claim for compensation.

Reserved Matters

8.11 Where the council is satisfied with the information submitted to make a decision and further investigations and the detailed design of remediation is still needed, these will be identified as reserved matters to enable detailed approval at an appropriate stage and give the developer greater certainty before incurring the costs involved.

8.12 Where the council is minded to grant outline planning permission, the length of time needed for further investigations and detailed design should be considered by the developer in determining the timescale for submission of a detailed application on the reserved matters.

8 Contamination

Key Principle - LC2

Key land contamination considerations

Developers, applicants or their agents should carry out the following key actions to ensure that contaminated land is assessed in line with the policy and that delays and further expense are avoided:

- Appoint a competent person to undertake any necessary assessment or remediation;
- Liaise with the council's specialist offices dealing with contamination as early in the process as possible;
- Ensure that land potentially affected by contamination is addressed in a phased approach seeking agreement with the council at each phase;
- Ensure that key stages in development are timed and planned with consideration of the assessment of contamination;
- Ensure that key elements of design upon which contamination may be a factor are carefully considered;
- Ensure that the conveyance of ground materials on and off site are in line with guidance and legislation and that the relevant paperwork is collated;
- Ensure that any changes to development details are considered in the development's conceptual site model;
- All of the guidance and requirements outlined in the Appendix 3 of this SPD should be followed.

Environmental Consultant

8.13 Due to the complex and highly technical nature of this subject, it is strongly recommended that suitably qualified and experienced Environmental Consultants are appointed to undertake any contaminated land assessment, investigation, remediation or verification.

Local Authority Liaison

8.14 It is essential that the council's specialist officers who deal with contaminated land are contacted as soon as possible in the process and that communication between them and the appointed Environmental Consultant continues throughout the process.

8.15 The council holds information regarding land potentially affected by contamination within their remit. This information should be sought as early as possible when considering a development to ensure that all of the council's potential concerns are addressed. The council may provide this information through environmental searches with associated fees to cover their time and relative expenses for gathering the information and presenting it in a usable format.

Phased Approach

8.16 It should be noted that the process for addressing land potentially affected by contamination entails a phased, or stepped approach (See Appendix 3 of this SPD). Each step informs the next and it is essential that a report of each step is submitted to and approved by the council before the next step is undertaken. It should also be noted that if one step identifies that no risk exists and no further actions are required and this is agreed by the council, the phases that follow may not be necessary.

Timeframe

8.17 The time required for each phase varies: some may take a significant length of time which could impact the timescales set for the development. For example, the intrusive site investigation will likely include ground gas or groundwater monitoring which typically require a minimum of 3 months (but sometimes 6 months and longer) before any development may commence including levelling of the site or piling.

Design

8.18 Some investigation outcomes may require a change to the design of the development itself. For example, if elevated ground gas is found, it may be necessary to incorporate design features such as a sub-floor void. This information is necessary as soon as possible in the process to ensure that these issues may be considered during the initial design process.

Soil Exportation and Importation

8.19 Regardless of whether land at the site is considered affected by contamination, the importation or exportation of soil at the development site will need to be detailed and reported to the council as part of the verification works. In regards to soil removal, the appropriate duty of care must be shown including analytical reports demonstrating the waste class of the material as well as the conveyance notes for the material should be provided. Soil imported to the site, whether for levelling, soft landscaping or other purposes will require the material to be tested (as a minimum, following placement at the receiving site), compared to site specific guideline values and included in the verification report.

Changes to Development Details

8.20 The assessment of a development is site specific and any change made to the design or end use may deem the assessment of the original proposed use null and void and require the risks associated with the site to be reassessed. These changes include, but are not limited to the end use (commercial versus residential), the size of the development, the inclusion of a basement or the re-levelling of the site.

Key Principle - LC3

Pre-application discussions

Proposers of development on potentially contaminated sites should arrange pre-application discussions as early as possible with the council's specialist contaminated land officers and the Environment Agency (where pollution of controlled water and the waste management implication of land contamination are likely to be issues) in order to:-

- **help to identify the likelihood and possible extent and nature of contamination and its implications for the development being considered; and**
- **receive assistance in scoping any necessary environmental impact assessment and**
- **identify the information that will be required by the council to reach a decision on the application when it is submitted.**

8.21 The council will advise developers to undertake the required steps to assess contamination where they appear necessary but have not yet been addressed.

8 Contamination

8.22 Contamination may add to the difficulty and cost of developing a site or even preclude certain uses. Low cost remedial methods generally take more time than high cost methods and may impact on the construction schedule and negatively impact on the viability of a scheme if not identified early in the development process.

8.23 Identification of potential problems at an early stage can enable a more positive approach to bringing forward development, thereby leading to a higher value land use, which in turn, could better cover the costs of remediation. Early attention to the contamination issues can help in locating development that is less sensitive to contamination on areas where the contaminated state of the land is likely to be more difficult to address.

8.24 The council holds information regarding land potentially affected by contamination within their remit. This information should be sought as early as possible when considering a development to ensure that any of the Council's potential concerns are addressed. The Council may provide this information through undertaking an environmental search for a fee. Please see the Council's website for further information.

Key Principle - LC4

Contaminated land assessment

Where land affected by contamination is known or suspected at all or part of a site or where the proposed use may be particularly sensitive to contamination, an appropriate contamination assessment will need to be submitted with the application to enable the council to determine whether the proposed development can proceed. This assessment should be carried out by a suitably qualified competent person and include, as a minimum, the following:-

- **Phase 1: a Preliminary Risk Assessment Report - to include a desk study, site reconnaissance (walk-over), and conceptual site model.**
- **Phase 2: a Site Investigation Scheme - to show how the risks identified in the Preliminary Risk Assessment are to be investigated.**
- **Phase 3: a Site Investigation Report- targeting unacceptable risks identified in the preliminary risk assessment including a risk assessment of the investigation's findings and a revised conceptual site model.**
- **Phase 4: a Remediation Strategy- to effectively deal with any existing or new unacceptable risks identified in the revised conceptual site model.**
- **Phase 5: a Verification Report- to show that the measures proposed in Phase 4 have been successfully implemented.**
- **Phase 6: Monitoring Report - occasionally, long term monitoring is required to continue post development.**

8.25 Where a development is proposed on land that is known or suspected of being contaminated, the developer is responsible for ensuring that development is safe and suitable for use for the purpose for which it is intended. The developer is thus responsible for determining whether land is free from unacceptable risks to human health, buildings and other property, controlled waters and the wider environment.

8.26 A contaminated land assessment is necessary to establish the nature and extent of the contamination before the Council determines whether the proposed development can proceed. Where unacceptable risks are present, it must be demonstrated that these risks are abated through remedial action without undue impact during and following the development with adequate investigation undertaken to inform a risk assessment.

8.27 All works associated with the assessment and investigation of land potentially affected by contamination should be carried out by or under the direction of a suitably qualified competent person and in accordance with BS10175 (2011) Code of Practice for the Investigation of Potentially Contaminated Sites and the Defra/Environment Agency's Model Procedures for the Management of Contamination (CLR11) 2004 or current guidance. It is expected that the phased approach recommended in CLR11 will be implemented. In the case of all submissions relevant to the assessment and remediation of land affected by contamination, the council will require evidence to demonstrate that these works have been carried out to an acceptable professional standard.

8.28 In order to inform the preliminary risk assessment of the site, a number of sources should be queried including historic maps, trade directories, planning records, petroleum officer records, the Environment Agency and the council's specialist officers dealing with contaminated land. It should be noted that commercial searches provided on the internet, whilst they may provide a useful indication of the possible presence of contamination, are not sufficient to establish the presence or absence of contamination.

8.29 The contaminated land assessment should be undertaken using a phased approach, with a report submitted at each phase which must be approved by the council before the next phase is undertaken. A brief summary of the key requirements for each phase is outlined below, but further detailed information for each phase can be found in Appendix 3 of this SPD.

Phase 1: Preliminary Risk Assessment

8.30 The preliminary risk assessment report shall comprise: a desktop study which identifies all current and previous uses at the site and surrounding area as well as the potential contaminants associated with those uses; a site reconnaissance; and a conceptual model indicating potential pollutant linkages between sources, pathways and receptors, including those in the surrounding area and those planned at the site; and a qualitative risk assessment of any potentially unacceptable risks arising from the identified pollutant linkages to human health, controlled waters and the wider environment including ecological receptors and building materials.

Phase 2: Site Investigation Scheme

8.31 The site investigation scheme shall be based upon and target the risks identified in the approved preliminary risk assessment and shall provide provisions for, where relevant, the sampling of soil, soil vapour, ground gas, surface and groundwater.

Phase 3: Site Investigation Report

8.32 Following a site investigation undertaken in compliance with the approved site investigation scheme, a quantitative risk assessment report shall: assess the degree and nature of any contamination identified on the site through the site investigation; include a revised conceptual site model from the preliminary risk assessment based on the information gathered through the site investigation to confirm the existence of any remaining pollutant linkages and determine the risks posed by any contamination to human health, controlled waters and the wider environment.

Phase 4: Remediation Strategy

8.33 The remediation method statement shall detail any required remediation works and shall be designed to mitigate any remaining risks identified in the approved quantitative risk assessment. This statement should include a plan which defines how all remedial works shall be verified. This should include plans for verification of the duty of care to be undertaken in the removal of soil from site, the testing of any soil brought onto or reused on site and how the installation of gas abatement measures is to be verified.

8 Contamination

8.34 If, during development, contamination not previously identified is found to be present at the site, the report produced shall indicate the nature of the contamination and how it is to be dealt with. Any required remediation shall be detailed in an amendment to the remediation statement and verification of these works included in the verification report.

Phase 5: Verification Report

8.35 Once the remediation method statement has been carried out in full, a verification report should be produced confirming these works and shall include: details of the remediation works carried out; results of any verification sampling, testing or monitoring including the analysis of any imported soil; all waste management documentation showing the classification of waste, its treatment, movement and disposal; and the verification of gas membrane placement.

Phase 6: Long Term Monitoring Report (if required)

8.36 An onward long-term monitoring methodology report shall include details and timeframes for assessing the success of the remediation undertaken. A verification report of these monitoring works should demonstrate that no residual adverse risks exist.

Key Principle - LC5

Determining Applications (including Consultations)

Where it is satisfied that the development proposed will be appropriate with regard to the information currently available about the contamination (if any) of the site and the proposed remediation measures and standards, the council will grant planning permission subject to any conditions requiring such further investigations, remediation (including verification) and onward monitoring as would be necessary, reasonable and practical.

Granting Planning Permission

8.37 In determining applications, the council will need to be satisfied that the development does not create or allow the continuation of unacceptable risk arising from the condition of the land in question or from adjoining land. In particular, it should satisfy itself that existing significant pollutant linkages will be broken by removing the source, blocking the pathway or removing receptors and that the development will not create new pollutant linkages by changing or creating exposure pathways e.g. creating new pathways to groundwater by site investigation drilling or piling.

8.38 For land use planning purposes, what constitutes an unacceptable risk is wider than for Part 2A purposes since planning is concerned with proposed development and future use and thus with both existing and new risks. In addition, the range of receptors is wider than under Part 2A and includes, for example, general fauna and flora, landscape and amenity. When remediation of land affected by contamination is achieved by means of development, these differences between the two regimes should be recognised and allowed for by developers and their advisors.

8.39 The standard of remediation to be achieved through the grant of planning permission for new development (including permission for land remediation activities) is the removal of unacceptable risk and making the site suitable for its new use, including the removal of existing pollutant linkages. All receptors relevant to the site should be protected to an appropriate standard. As a minimum, after carrying out the development and commencement of its use, the land should not be capable of being determined as contaminated land under Part 2A of the EPA 1990.

8.40 Refusing Planning Permission

8.41 The council will refuse permission if it is not satisfied on the basis of the information provided by the applicant and that available from other sources, including the responses of those consulted, that the development would be appropriate. This could include cases where:-

- circumstances, including information available to the council, clearly suggest the possibility of contamination or of unacceptable risk and no information has been provided or obtained that excludes the reasonable possibility of such contamination or risk.
- the council considers that unacceptable risk exists and cannot be dealt with adequately to deliver a development that is suitable for its intended use and which results in the removal of such risks; or
- the steps needed to deliver an appropriate development and deal with unacceptable risk are not already in place and cannot be secured by suitable planning conditions, e.g. because these are not within the powers of the developer since action is needed on other land outside the developer's control or influence.

Key Principle - LC6

Cumulative environmental impacts

Developers should satisfy the council that they have adequately considered issues associated with site investigation and remediation such as cumulative negative environmental impacts from dust, noise, odour and traffic movements arising from the remediation activities and the possible need for measures to control or mitigate them. A balance should be struck between the overall social and economic benefits from the development, including the remediation proposals, and the temporary impacts of the remediation process. Applicants are recommended to consider carefully the waste management implications when deciding the best approach to remediation and the handling and treatment of contaminated soils and other material.

Integrated Environmental Considerations

8.42 During the investigation, remediation, verification and on-going monitoring of the site, the environmental impact of these works should be considered when determining the suitability of the methods employed. Some environmental considerations include the production of particulate matter or gases which may impact on local air quality by mechanical equipment utilised on the site. A balanced consideration of the environmental impacts of these works should be undertaken in determining the most appropriate methods to be employed. Reference should be made to Chapters 5 and 6 of this SPD on noise and nuisance and air quality.

Sustainable Remediation

8.43 Where remediation is deemed necessary, a sustainable remediation strategy should be implemented for which there is the least negative environmental impact.

8.44 Traditional methods of containing contamination to break a pollutant linkage on site such as encapsulation or the use of permeable reactive barriers may minimise the use of 'dig and dump' and hence produce less waste which must then be transported over large distances creating further environmental impacts. However, these methods may have an effect on the local hydrogeology and their impact should be considered in regards to other environmental factors such as an increased flood risk or the generation of leachates.

8 Contamination

8.45 In-situ remediation should be considered and time should be factored into any development schedule for the implementation of such a scheme. Where works are phased or space allows, areas should be designated for stockpiling material for re-use on or near to the site. Another option which should be considered is the designation of areas where 'soil hospitals' may be established or the use of off-site nearby soil hospitals at which ex-situ remediation techniques are employed on contaminated soil to enable their re-use on or near to the site. When remediation or containment are not feasible and removal of the soil is the only option, the waste hierarchy of: reduce, reuse, recycle, recover, dispose should be employed.

8.46 The CL:AIRE Definition of Waste: Development Industry Code of Practice, V2, 2011 (or relevant current guidance) should be referenced and integrated where possible. Reference should likewise be made to section 12 of this SPD on sustainable design and construction.

Key Principle - LC7

Planning conditions - land contamination

Where planning conditions in relation to the contaminated land assessment and, where necessary, the remediation of contaminated land are placed, further submission requirements may be necessary.

8.47 Planning permission can be granted subject to conditions. The council can use planning conditions where the relevant tests are met, to ensure that development does not commence until the identified stages in relation to an assessment or remediation scheme have been discharged.

8.48 A summary of common submission requirements are as follows:

- to propose and receive approval for a preliminary risk assessment;
- to propose and receive approval for further investigation;
- to propose and receive approval for a risk assessment following investigation of the site to confirm the nature and extent of contamination and validate the conceptual model and allow more refined risk assessment and appraisal of remedial options;
- to propose and receive approval for a remediation scheme that ensures the removal of unacceptable risks to make the site suitable for use and outlines a verification plan;
- to report any previously unidentified contamination encountered during development works and to propose and receive approval for a remediation scheme to deal with this contamination;
- to submit and receive approval for a verification report that demonstrates the effectiveness of the remediation carried out, preferably before building works begin and categorically before the site is occupied by future users;
- to propose and receive approval for any onward long-term monitoring past the completion of development;
- to submit and receive approval for a verification report of the success of any onward long-term monitoring.

9 Sustainable Drainage Systems (SuDs)

9.1 Sustainable Drainage Systems (SuDS) are an alternative approach to traditional ways of managing rainwater runoff from buildings and other surfaces. SuDS can reduce the total volume and rate at which surface water is discharged from a site into the drainage system. The use of SuDS is particularly important in Hammersmith and Fulham because surface water flood risks are present across much of the borough, as identified in the council's Surface Water Management Plan. As well as providing flood management benefits, SuDS are also capable of helping improve water quality, water efficiency, biodiversity and amenity where above-ground measures are used.

Policy Context - Sustainable Drainage Systems (SuDs)

National policy

National Planning Policy Framework (NPPF) Paragraph 103 states: *When determining planning applications, local planning authorities should ensure:development is appropriately flood resilient.....and it gives priority to the use of sustainable drainage systems...*

London Plan

The London Plan Policy 5.13 Sustainable Drainage states that developments should utilise SuDS unless there are practical reasons for not doing so, and should aim to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible in line with the Mayor's drainage hierarchy. The policy also stresses that drainage measures should be designed and implemented in ways that deliver other policy objectives, including water use efficiency and quality, biodiversity, amenity and recreation.

Other relevant policies include Policies 5.10 and 5.11 on Urban Greening and Green Roofs which outline how green infrastructure can also make a contribution to sustainable drainage by absorbing a proportion of surface water and therefore reducing run-off rates;

Local Plan

One of the council's key strategic objectives is to deliver an environmentally sustainable borough. Local Policy Strategic Objective 10 states the aim to:

Preserve and enhance the quality, character and identity of the borough's natural and built environment (including its heritage assets) by respecting the local context, seeking high quality, intelligent developments and design, and ensuring compliance with the principles of inclusive and sustainable design.

The borough wide policy for SuDS, which **applies to all proposals for new development** is contained in **Policy CC4** - Minimising Surface Water Run-off with Sustainable Drainage Systems. The requirement for SuDS is also contained in **Policy DC11** - Basement and Lightwells and **Policy HO11** - Detailed Residential Standards. Therefore advice given in this part of the SPD will also apply to these policies. **Local Plan Policy CC4** is also linked to **Policy CC3** - Minimising Flood Risk and Reducing Water Use (see Chapter 10) and **OS5** - Greening the Borough and **Policy OS4** - Nature Conservation.

9 Sustainable Drainage Systems (SuDs)

Key Principles

Key Principle - SuD1

SuDs in Major Developments

All major developments must implement Sustainable Drainage Systems (SuDs) to enable a reduction in peak run-off to greenfield run off rates for storms up to the 1 in 100 year event (plus climate change allowance)

9.2 SuDS are required for all new major developments in order to manage flood risk and ensure that surface water run-off does not have a detrimental impact on either the new development or neighbouring uses. SuDS are also required to achieve the additional benefits they can provide which can help show compliance with other Local Plan policies, as outlined above.

9.3 During storm events when rainfall levels are at their highest, peak rates of surface water run-off from a developed site which is mainly impermeable surfaces would be significantly higher than if the site was a greenfield site. Uncontrolled run-off from such sites drains much quicker and in greater volumes compared to greenfield conditions as there are few, if any opportunities for water to infiltrate into the ground or be intercepted through other means (e.g. via plants etc). The speed at which run-off is directed into the combined sewer system, along with the volume of water that is draining into the sewers over a short period of time can cause sewers to surcharge where their capacity to take surface and foul water flows is exceeded during a storm. The resulting flooding can have serious impacts on people's property and their quality of life. H&F has suffered from sewer/surface water flood incidents in the past and these will continue to happen, particularly as climate change impacts increase, unless action is taken.

9.4 The implementation of SuDS in major developments will not only help to reduce flood risk for those new developments from on-site flooding, but also help to minimise flood risks from surface water and sewers for neighbouring areas as the SuDS will help free up capacity in the sewer system.

9.5 The integration of SuDS measures needs to be considered early in the site evaluation and planning process, as well as at the detailed design stage. Completing the design of a development and trying to fit in SuDS measures around that design (effectively retro-fitting SuDS onto a new development) will not maximise the benefits that SuDS can provide to a site and is unlikely to provide a proposal that will be accepted by the council in its role as Lead Local Flood Authority.

9.6 Developers are strongly encouraged to make use of the council's pre-application advice service to receive guidance on requirements in relation to flood risk management and integration of SuDS measures into major sites.

Key Principle - SuD2

Sustainable Drainage Strategy

Major developments will be required to provide a Sustainable Drainage Strategy that demonstrates how SuDS will be integrated to reduce peak flow volumes and rates in line with the requirements of Policy CC4.

9.7 All applications for major developments are required to include a Sustainable Drainage Strategy. This can either be provided as a stand-alone report, or included as part of a Flood Risk Assessment (FRA).

Sustainable Drainage Systems (SuDS) 9

9.8 The Strategy should show how the requirements of Local Plan policy CC4 will be met by the scheme. The guidance provided in this SPD should be followed in developing the Strategy which should show how surface water will be managed as close to its source as possible, through the implementation of on-site above ground SuDS measures where possible, maximising the amount of attenuation and minimising final discharges to greenfield rates.

9.9 Major applications that do not include a Sustainable Drainage Strategy will not be accepted or validated by the planning authority until one is provided. Where a standalone SuDS Strategy is submitted, this should be consistent with all other supporting documents that are submitted with the application that references SuDS or related measures. This includes the FRA, the Sustainability Statement and site plans.

9.10 To guide developers on the sort of supporting information that should be submitted as part of their FRA or SuDS Strategy reports, the following checklist should be followed to ensure the required information is included, as a minimum:

- Detailed site layout at an identified scale;
- Topographical survey of the site;
- Ground investigation, including infiltration test results, where appropriate;
- Full design calculations and design parameters to demonstrate conformity with the design criteria for the site;
- Long sections and cross sections for the proposed drainage system;
- Suitable design and construction details of all proposed SuDS measures;
- Landscape planting scheme where vegetated SuDS systems are proposed;
- Plan of proposed drainage system with catchment areas including impermeable areas and phasing;
- Details of connections (including flow control devices) to watercourses, sewers, public surface water sewers, highway drains and SuDS features;
- Details of any off-site works required, together with any necessary consents;
- Confirmation of final discharge rates of surface water from the development and quantification of attenuation levels achieved;
- Maintenance schedule and management plan for all SuDS features;

9.11 Developments must be designed so that run-off from a range of storms up to and including the 1 in 100 year storm, including an allowance for climate change impacts can be managed without increasing flood risks on or off-site. The SuDS Strategy should not be designed exclusively for just the most extreme storm event, but should also demonstrate how more frequent storms such as the 1 in 1 year, 1 in 10 year and 1 in 30 year storms (+ climate change) will be managed. Whilst it is important to show that the site can cope with a 1 in 100 year storm event, it is also important that more frequent storms are also managed with SuDS measures.

9.12 The London Plan Drainage Hierarchy, as outlined below should be followed to guide the implementation of SuDS on sites, although it should be noted that in H&F, due to the extensive river frontage, measure 5 should be prioritised above measure 4 where this is possible in order to manage surface water as close to its source as possible.

1. Store rainwater for later use
2. Use infiltration techniques, such as porous surfaces in non-clay areas
3. Attenuate rainwater in ponds or open water features for gradual release
4. Attenuate rainwater by storing in tanks or sealed water features for gradual release
5. Discharge rainwater direct to a watercourse (see note above)
6. Discharge rainwater to a surface water sewer/drain
7. Discharge rainwater to the combined sewer

9 Sustainable Drainage Systems (SuDs)

9.13 The measures at the top of the hierarchy (measures 1-3 and 5) are considered to be the most sustainable and therefore preferable SuDS to be implemented on sites in H&F. Measures 1-3 in particular provide the best scope to not only provide flood risk benefits, but to provide additional benefits for water efficiency, water quality, biodiversity and amenity.

9.14 Full details of the range of SuDS measures available for inclusion in major developments in particular are not provided in this SPD as they can be found elsewhere, including the CIRIA SuDS Manual and on the SusDrain website. However, the SuDS measures that are considered to be the most suitable for use in H&F are:

- Rainwater harvesting systems that collect rainwater for re-use (e.g. for irrigation purposes or for internal re-use such as toilet flushing)
- Use of permeable surfaces such as soft landscaping, including living roofs, rain gardens, SuDS tree pits and pervious hard landscaping such as permeable paving which allow direct infiltration of surface water
- Other infiltration techniques such as soakaways, where the underlying soil is suitable
- Blue roof systems to store rainfall, preferably for re-use on site and integrated with living roofs
- Inclusion of swales or detention basins to temporarily store water at the surface
- Direct discharge to the River Thames and other water bodies, for those developments directly adjacent to watercourses and where such discharges will not cause detrimental impacts.

9.15 The use of underground storage tanks with controlled discharges to the sewer system will only be accepted where the use of more sustainable measures outlined above have been maximised, but are not capable of providing the required storage volumes to achieve final discharges that meet greenfield run-off rates.

9.16 Major developments must reduce their final discharge rates to the greenfield rate for the site. SuDS Strategies that set their final discharge rate above this, including those that revert to 5l/s on the basis of this being the minimum viable discharge rate for surface water will be challenged. The expectation is that lower final discharges will be proposed as rates lower than 5l/s have been successfully achieved by the council in its own SuDS schemes.

9.17 As highlighted on the SusDrain website, Defra has undertaken a number of comparative studies on the costs and benefits of traditional drainage and SuDS. When comparing the capital (and sometimes the maintenance) costs for draining sites using sustainable drainage methods against more traditional approaches, all of the sites in these studies showed that the inclusion of SuDS was cheaper than a traditional drainage system. Use of economic arguments to exclude SuDS from major schemes will therefore not be accepted.

9.18 For outline planning applications, a conceptual SuDS Strategy should be provided which sets out the principles to be adhered to for the site, providing information where possible on the types of SuDS measures to be included and the attenuation levels and final discharge rates that will be targeted.

9.19 A number of detailed guidance documents are available on SuDS issues. These include the CIRIA SuDS Manual (C753), available on the CIRIA website ⁽⁶⁾, which details SuDS design, construction, operation and maintenance requirements; Imperial College's Blue Green Solutions Guide⁽⁷⁾ which highlights the benefits of nature based solutions and promotes their use in SuDS schemes to provide multiple benefits; the Susdrain website⁽⁸⁾ which includes a range of factsheets, briefings and case studies on many different SuDS schemes and the SuDS Design and Evaluation Guide, available on the council's website, which promotes the idea of integrating SuDS into the fabric of development: using the available landscape spaces as well as the construction profile of buildings.

6 www.ciria.org

7 (<http://bgd.org.uk>)

8 (www.susdrain.org)

Key Principle - SuD3

SuD3 in minor Developments

All other developments must maximise attenuation levels, achieving greenfield run off rates where possible, particularly where they are located in surface water flooding hotspots or increase a site's impermeable area.

9.20 Surface water and sewer flooding are not just risks for major developments, but for smaller developments as well. Small-scale development such as small housing schemes, non-residential development under 1000m² of floorspace and householder scale proposals such as extensions can also provide opportunities to integrate SuDS measures to control surface water run-off and help to reduce the pressure on the sewer system during storm events.

9.21 The most appropriate SuDS measures for 'non-major' developments are likely to be rainwater collection for re-use, integration of green/brown roofs on flat roofs (as required by Policy CC4 and covered in more detail below) which could also include blue roof storage in some cases, use of soft landscaping and permeable paving. Other measures may be appropriate if there is space or suitable underlying soils for measures such as soakaways or swales.

9.22 Implementation of SuDS measures is particularly important where developments are located in or close to known surface water flooding hotspots, as identified in the council's Surface Water Management Plan or where a development could result in an increase in impermeability on a site.

9.23 Small-scale works such as householder alterations/extensions can provide an opportunity for installing SuDS – even if this is a simple measure such as using a water butt to collect and store rainwater or installing some permeable paving or a rain garden where run-off is directed to an area of planting rather than into the sewer. If there is space, and the underlying soils are suitable in terms of their infiltration and contamination levels, then a soakaway might be feasible, although this would need to be designed and installed to meet Building Regulation standards in Approved Document H. The council has produced guidance on small-scale SuDS measures called "Living with Rainwater" which is available on our website ⁽⁹⁾

9.24 It should be noted that permitted development rights for householders wishing to install hard surfacing which exceeds 5m² in front gardens have been removed, although smaller areas are still allowed without the need for planning permission. However, if a permeable surface is planned, this can still be done without the need for planning permission (regardless of area). Permeable surfacing materials include gravel, permeable concrete block paving or porous asphalt. Laying an impermeable surface that directs runoff to a lawn or border to drain naturally is also acceptable as permitted development. If the surface to be covered is more than 5m², planning permission will be needed for laying traditional, impermeable driveways that do not provide for the water to run to a permeable area. Further guidance on the design and construction options can be found online ⁽¹⁰⁾

9.25 Where possible, 'Prior Approval' applications, which are required to include Flood Risk Assessments should also include simple SuDS proposals such as those outlined above.

9 www.lbhf.gov.uk/emergencies-and-safety/floods/living-rainwater.

10 www.communities.gov.uk/publications/planningandbuilding/pavingfrontgardens

9 Sustainable Drainage Systems (SuDs)

Key Principle - SuD4

Design of SuDs

As well as being designed to minimise flood risk, surface water drainage measures must be designed and implemented on all developments where possible to help deliver other Local Plan policies such as those on biodiversity, amenity and recreation, water efficiency and quality and safe environments for pedestrians and cyclists.

9.26 The use of SuDS in new developments is justified mainly on the basis of being necessary to help manage local surface water and sewer flood risks in the borough. However, many of the available SuDS measures can deliver multiple benefits to sites, particularly where rainwater is harvested for re-use or where ground level measures are implemented in preference to below ground options such as an underground storage tank.

9.27 Above ground SuDS can also provide amenity space or be integrated into existing open spaces, increase biodiversity levels, help reduce the urban heat island effect and also provide improvements in local air quality. Green infrastructure SuDS can help create visually attractive developments which help improve people's quality of life and general health and also help to comply with Local Plan Policies on Open Space i.e. Policy OS4 on Nature Conservation and Policy OS5 on Greening the Borough. Where possible, the use of native plants should be prioritised as these are likely to provide increased biodiversity benefits over non-native invasive species. There is also scope to integrate SuDS measures into streetscapes where these form part of development proposals, contributing to improved environments for cyclists and pedestrians.

9.28 Further details on the multiple benefits that SuDS can provide are available on the Susdrain website.

9.29 The Imperial College Blue Green Solutions Guide ⁽¹¹⁾ is also particularly good at highlighting how green infrastructure can provide multiple benefits.

Key Principle - SuD5

SuDs and Flat roofs

All flat roofs in new developments should be living roofs to help contribute to reducing surface water run-off.

9.30 Living roofs (either green and brown roofs) provide multiple benefits for a relatively small additional construction cost. As well as helping to reduce the volume and speed at which surface water run-off enters the sewer system for the most frequent storm events, green/brown roofs can also provide biodiversity benefits. They can also reduce energy use and carbon emissions by improving insulation levels whilst also helping to provide cooling in summer. For larger developments, the feasibility of integrating blue roof technology into living roofs should be explored and implemented where viable as this will further increase storage capacity.

Sustainable Drainage Systems (SuDs) 9

9.31 This policy applies to all developments, not just major sites. Green/brown roofs should be designed and constructed to provide at least 80mm depth of substrate which will provide a reasonable capability to retain rainfall and also support biodiversity and improve building performance. For larger roofs, it is preferable to vary substrate depths to help promote a diversity of plants and habitats.

9.32 Extensions often have flat roofs that could be utilised by integrating green/brown roofs. Where extensions are built over permeable surfaces, the use of a green/brown roof ensures that development does not increase run-off; where an impermeable surface is being built on, they provide positive benefits in terms of reducing run-off. Green roofs on extensions are likely to be small-scale installations, but cumulatively, they could significantly help to reduce surface water run-off and thereby relieve the pressure on the combined sewer system.

9.33 Further details on green/brown roofs, their design, installation and maintenance requirements can be found in the Green Roof Code of Best Practice, which is available on the Living Roofs website⁽¹²⁾. The council's Living with Rainwater guide also includes information on small-scale living roof installations⁽¹³⁾.

Key Principle - SuD6

Outdoor Car Parking Areas and Other Hard Standing Surfaces

All new outdoor car parking areas and other hard standing surfaces shall be designed to be rainwater permeable with no run-off being directed into the sewer system, unless there are practical reasons for not doing so.

9.34 Car parking and other hard landscaping such as access roads, pavements, bin storage areas etc can represent a significant component of a development's overall area. Where these are outdoors, they should be designed and installed to be permeable, allowing surface water to infiltrate into the ground or a permeable sub-base, with no discharge to the sewer system (unless this is not viable).

9.35 Permeable surfaces are capable of functioning in the same way as conventional hard standing surfaces. They are strong enough for everyday use, including by vehicles but rather than directing run-off into the sewer, the paving or pervious surface allows water to flow through it and infiltrate. If this is not desirable, lined systems can be used. The use of permeable surfaces reduces the need for deep excavations for conventional drainage systems, and also removes the need for gully pots and manholes. This can reduce costs.

9.36 Permeable surfaces come in many different types and there should not be any design restrictions that would mean that impermeable surfaces should be preferred over permeable ones. The Susdrain website contains details on a range of permeable paving types.

9.37 It would also be acceptable to direct run-off from car parks and other hardstanding areas into soft landscaped areas or SuDS tree pits.

12 www.livingroofs.org

13 www.lbhf.gov.uk/emergencies-and-safety/floods/living-rainwater

9 Sustainable Drainage Systems (SuDs)

Key Principle - SuD7

SuDs Maintenance

Where installed, SuDS measures on all developments must be retained and maintained for the lifetime of the development and details of their planned maintenance must be provided to the council.

9.38 SuDS Strategies submitted to the council will need to include a maintenance programme which identifies the type and frequency of maintenance to be carried out on the installed SuDS measures, along with details of who is responsible for maintaining the SuDS – i.e. site owner, landscape contractors, a facilities management company etc.

9.39 The CIRIA SuDS manual, available from the CIRIA website ⁽¹⁴⁾, provides a maintenance inspection checklist that can be used or adapted to guide requirements, depending on the SuDS measures installed.

9.40 All SuDS features should be designed and installed to last for the expected lifetime of the development they serve, or where this is not possible, they should be designed and installed in such a way that they can be repaired or removed and replaced to ensure that developments continue to be protected from surface water flooding and provide any additional benefits that the SuDS feature provides. This includes underground storage tanks, if installed, which may need to be repaired or replaced during the lifetime of the development.

10 Flood Risk and Water Efficiency

10.1 As identified in the council's Strategic Flood Risk Assessment, over 60% of the area of H&F and about 75% of the population are in the Environment Agency's (EA's) Flood Zones 2 and 3 which indicate medium to high risks of flooding from the River Thames. However, the EA's Flood Zone designations do not take account of flood defences and in practice, the borough is defended to a 1 in 1000 year standard by a series of walls, embankments, flood gates and barriers, with the Thames Barrier providing a significant level of protection. However, there is still a risk of over-topping or breach of these defences that could affect large parts of the borough.

10.2 In addition to the risks of tidal flooding from the Thames, much of H&F is at risk from sewer and/or surface water flooding. This is mainly because both foul and surface water drainage are directed into a combined sewer system. Wastewater from other boroughs also passes through the local sewer system, which can become overwhelmed when large volumes of surface water enter the system very quickly – i.e. during very heavy downpours. Climate change impacts such as more frequent extreme weather events are expected to increase the frequency and severity of this type of flooding. The borough already has many residential streets with basement properties which are potentially vulnerable to surface water flooding. It is therefore vital that basement developments are carried out with appropriate flood mitigation measures in place to guard against future flood events. Some parts of the borough are also at risk of groundwater flooding which could also impact on subterranean developments. Therefore the potential risks of groundwater flooding should also be covered in Flood Risk Assessments, where relevant. The council's Surface Water Management Plan explains sewer, surface and groundwater flood risks in more detail and is available on the council's website.

10.3 Taking account of flood risk issues for new developments, incorporating appropriate mitigation measures where necessary and integrating sustainable drainage measures (covered in detail in Chapter 9) where feasible are therefore very important in helping to protect the borough from the potential impacts of flooding. The inclusion of water efficiency measures are also required in new developments to help minimise the flows of foulwater into the sewer system.

10 Flood Risk and Water Efficiency

Policy Context - Flood Risk and Water Efficiency

National Policy

Flood risk and water resource issues are referenced in two of the twelve core planning principles set out in the Government's National Planning Policy Framework (NPPF). One of these principles is that planning should support the transition to a low carbon economy in a changing climate, taking full account of flood risk and water supply and demand; another is that planning should encourage multiple benefits from the use of land in urban areas, recognising that some open land can perform many functions such as for wildlife, recreation, flood risk mitigation, carbon storage or food production.

To achieve these objectives, the NPPF states that the planning system should aim to do the following in terms of flooding:

- avoid inappropriate development in areas at risk of flooding by directing development away from areas at highest risk or where development is necessary, making it safe without increasing flood risk elsewhere;
- minimise vulnerability and provide resilience to impacts arising from climate change; and
- when new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure.

With regard to water resources, the NPPF states that new development should be planned to avoid increased vulnerability to the impacts arising from climate change, which includes water supply/demand issues.

London Plan

In addition to complying with national policy requirements, Policy 5.12 of the London Plan on flood risk management requires development proposals to have regard to measures proposed in the Thames Estuary 2100 (TE2100) Plan. This includes a requirement for development adjacent to flood defences to protect the integrity of existing flood defences and wherever possible, aim to be set back from those defences to allow their management, maintenance and upgrading. The London Plan also sets out requirements for developments in terms of flood resilient design and emergency planning considerations.

Other relevant policies include policies 5.14 and 5.15 on Water Quality/Wastewater Infrastructure and Water Use and Supplies, which focus on helping to ensure that London has adequate and appropriate water supply and wastewater infrastructure to meet the requirements placed upon it by population growth and climate change.

Local Plan

One of the council's strategic objectives is to deliver an environmentally sustainable borough. Local Policy Strategic Objective 13 states the aim: *To reduce and mitigate the local causes of climate change, mitigate flood risk and other impacts and support the move to a low-carbon future.*

The Local Plan contains 2 key policies on flood risk management and water use issues:

- Borough Wide Strategic **Policy CC3** Minimising Flood Risk and Reducing Water Use
- Borough Wide Strategic **Policy CC4** Minimising Surface Water Run-off with Sustainable Drainage Systems

These require developments to incorporate flood mitigation and SuDS measures to help protect properties where potential flood risks exist in the borough and also to **implement water efficiency measures** to minimise use of potable water and foulwater flows.

Policy DC 11 Basement Accommodation and Lightwells and **HO11** Detailed Residential Standards also include specific requirements for housing developments, particularly in relation to basements including flood protection measures and attenuation of surface water run-off.

Policies RTC1 River Thames and **RTC2** Access to the Thames Riverside and Foreshore require new developments to safeguard, and where necessary, enhance flood defences, ensuring that proposals do not adversely affect flood defences.

Flood Risk Assessment Requirements

Key Principle - FR1

Submission of a Flood Risk Assessment

Require a site specific Flood Risk Assessment (FRA) for the following development proposals:

- All proposals for developments in the Environment Agency's Flood Zones 2 and 3;
- Proposals for new developments over 1 hectare in size in Flood Zone 1;
- All proposals for new development in areas identified in the council's SWMP as being susceptible to surface water flooding – i.e. those located in a flooding hotspot;
- All proposals for new development which includes a subterranean element in areas identified in the council's SWMP as being at risk from elevated groundwater levels.

10.4 It is important to note that the issue of flood risk does not just relate to flood risk from the River Thames in H&F as there are other sources of flooding in the borough including surface water, groundwater and sewers. Applications for all developments that are in parts of the borough identified as potentially at risk of flooding from any of a range of sources – fluvial, tidal, surface water and/or groundwater – as defined in Policy CC3, must include a FRA.

10.5 FRA's should make use of relevant flood risk information, such as that provided in the council's Strategic Flood Risk Assessment and Surface Water Management Plan which are available on the council's website. The Environment Agency also provides detailed advice on flood risk issues, including guidance on establishing when a FRA is required, how to complete one and how it's processed. Further information, including guidance on FRA requirements for minor applications, is available on the EA website: www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

10.6 The information provided in the FRA should be proportionate to the degree of flood risk at the development site and be appropriate to its scale, nature and location. For example, where an application is submitted for an extension to an existing house which would not significantly increase flood risk either on the site or for other adjacent sites, then generally a less detailed assessment would be acceptable, subject to the requirements of the planning policies outlined in this SPD. If, on the other hand, an application concerns a new development introducing housing onto a site previously used for non-residential uses where flood risks from a number of sources are considered to be significant, then a more detailed assessment would be required.

10 Flood Risk and Water Efficiency

10.7 It is also important for FRAs for development proposals located in areas at risk of flooding from a breach or over-topping of defences cover this scenario and make it clear how occupants will stay safe in such a scenario.

10.8 In relation to flood risk from the Thames, further details on when an assessment is required, when it's not necessary, when the Environment Agency's standing advice can be followed and how to carry out an FRA can be found online here: www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

10.9 In terms of surface water flood risk, the SWMP identifies a number of hotspots across the borough that are considered to be susceptible to flooding in the event of a major storm. Applications for development in these locations should include an assessment of surface water flood risks in the FRA, proposing suitable mitigation measures where necessary to protect the development from surface water flooding. Where groundwater and sewer flooding are identified risks, the FRA will also need to identify how these will be mitigated through the use of appropriate measures.

10.10 Appendix A1 of the H&F SFRA also contains guidance on how to complete a detailed Flood Risk Assessment.

Key Principle - FR2

Requirements, including Exception Test

As part of the FRA, the requirements of the National Planning Policy Framework must be addressed and, where applicable, an Exception Test must also be carried out and included in the FRA.

10.11 The NPPF states that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, it should be made safe without increasing flood risk elsewhere. This general approach, referred to as the "Sequential Test", is designed to direct development towards areas where there is little or no risk of flooding from any source. At a national level, the aim of this policy is to keep development out of medium and high flood risk areas (Flood Zones 2 and 3) and other areas affected by other sources of flooding where possible. In H&F, around 60% of the borough is in the Environment Agency's Flood Zones 2 and 3. Given the large range and extent of flood risks in the borough, the council has applied the Sequential Test and concluded that, subject to proposals satisfying the requirements of the Exception Test and the provision of an adequate Flood Risk Assessment, all parts of the borough are considered as potentially suitable for development and there is no need for FRAs to include a Sequential Test assessment.

10.12 However, sites may still need to satisfy the requirements of the NPPF's Exception Test and provide an appropriate site specific FRA. In H&F, the main focus of the Exception Test is on new, major development proposals as it does not need to be applied to minor developments and changes of use, (except the unlikely scenario of a change of use to a caravan, camping or chalet site, or to a mobile home or park home site).

10.13 The Exception Test is a way of demonstrating that a site can be developed whilst ensuring that flood risk to people and property will be managed satisfactorily. There are two parts to the Test, as outlined in the NPPF which essentially require proposed developments to show that they will provide wider sustainability benefits to the community that outweigh flood risks, and that they will be safe for their lifetime, without increasing flood risk elsewhere. Where possible, developments should reduce flood risks overall.

Flood Risk and Water Efficiency 10

10.14 The Exception Test should be applied in line with the information outlined in Tables 1 and 2 which are adapted from the Government’s Planning Practice Guidance – i.e. it is applicable where an application includes proposals for ‘highly vulnerable’ development in Flood Zones 2 or 3, and for ‘more vulnerable’ and/or ‘essential infrastructure’ developments in Zone 3a and ‘essential infrastructure’ developments in Zone 3b. If a development contains different elements of vulnerability and the highest vulnerability category should be used, unless the development is to be considered in its component parts.

10.15 National guidance suggests that ‘highly vulnerable’ developments should not be permitted in Flood Zone 3a, but in H&F, because so much of the borough is in this flood zone, it is considered appropriate to apply the requirements of the Exception Test, rather than rule out development completely on the grounds of flood risk.

10.16 Table 1 showing when the Exception Test is required

		Essential Infrastructure	Water Compatible	Less Vulnerable	More Vulnerable	Highly Vulnerable
Flood Zone	1	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate
	2	Development is appropriate	Development is appropriate	Development is appropriate	Development is appropriate	Exception Test Required
	3a	Exception Test Required	Development is appropriate	Development is appropriate	Exception Test Required	Exception Test Required
	3b	Exception Test Required	Development is appropriate	Development not permitted	Development not permitted	Development not permitted

10.17 Table 2 showing Key Flood Risk Vulnerability Classifications

Vulnerability Classification	Example Uses
Essential Infrastructure	<ul style="list-style-type: none"> ● Essential transport infrastructure ● Essential utility infrastructure (e.g. energy generation)
Water Compatible	<ul style="list-style-type: none"> ● Flood control infrastructure ● Water/sewage transmission infrastructure ● Water based recreation, amenity open space ● Docks, marinas, wharves
Less Vulnerable	<ul style="list-style-type: none"> ● Buildings used for shops, restaurants, cafes, offices, financial/professional services ● Emergency services stations not required to operate during flood events
More Vulnerable	<ul style="list-style-type: none"> ● Buildings used for: dwelling houses, student halls of residence, drinking establishments, nightclubs, hotels ● Hospitals, residential institutions (e.g. care homes, hostels, prisons) ● Non-residential uses for health services, nurseries and educational establishments
Highly Vulnerable	<ul style="list-style-type: none"> ● Basement dwellings (self-contained)

10 Flood Risk and Water Efficiency

- | | |
|--|---|
| | <ul style="list-style-type: none"> • Emergency services (police/fire/ambulance) stations required to operate during flood events • Installations requiring hazardous substances consent |
|--|---|

10.18 (For a complete list of vulnerability classification uses, see Table 2-2 in the H&F SFRA 2016)

10.19 For the Exception Test to be passed:

- it must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared; and
- a site-specific flood risk assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

10.20 Where required, the FRA should demonstrate how both elements of the test have been passed in order for the development to be allocated or permitted.

Key Principle - FR3

Flood Risk Assessment and Flood Proofing Measures

The FRA must assess the risk of flooding from all relevant sources, in particular tidal, surface and groundwater, as well as sewer flooding and where there is a risk of flooding, appropriate flood proofing measures must be integrated, in accordance with the guidance in the H&F SFRA.

10.21 The council's most recent Strategic Flood Risk Assessment (SFRA) and Surface Water Management Plan (SWMP) should be used by developers to identify a site's present and future flood risk from all sources and assess the impact that their development will have on flood risk. Information from the Environment Agency such as their "Product 4" data should also be used when assessing risks from the River Thames, particularly in relation to flood risks from a breach/over-topping event.

10.22 The SFRA identifies that the most significant sources of flood risk within H&F are surface water, sewer and groundwater flooding. There is also tidal flood risk if the flood defences failed. The SFRA and SWMP contain maps which identify the following and which should be used to help determine the flood risks that should be covered in any FRA:

- Maps showing the extents of Flood Zones 1, 2 and 3
- Map showing the areas at risk of rapid inundation in the event of failure or breach of flood defences
- Maps showing potential tidal breach locations and depths
- Borough and Ward level maps identifying hotspots and areas where significant hazards are forecast in terms of surface water flooding
- A map showing those parts of the borough at risk of increased potential for elevated groundwater
- Map showing the number of sewer flooding incidents by postcode area
- Map showing historic flood incidents in the borough from all sources

10.23 Where the SFRA and/or SWMP identify that a site is at risk of flooding from any source, the FRA must include details of appropriate flood proofing or mitigation measures that will be integrated. FRA's that do not assess all relevant flood risks (e.g. they consider flood risk from the Thames but not other flood risks, or flood risks from a breach event are not considered) will be rejected as inadequate.

Flood Risk and Water Efficiency 10

10.24 Appendix A2 of the SFRA provides guidance on mitigation measures that should be considered for integration into new developments to provide appropriate levels of flood resilience from the various sources of flood risk. The 2007 Communities and Local Government document 'Improving the Flood Performance of New Buildings - Flood Resilient Construction' is also a useful reference document when determining appropriate mitigation measures for new developments: www.gov.uk/government/publications/flood-resilient-construction-of-new-buildings.

10.25 In relation to providing protection from surface and/or tidal flood risks, it is recommended that the following hierarchy is followed in considering appropriate flood mitigation measures:

- Avoidance - Construction of development in such a way that it can avoid being flooded (e.g. by raising finished floor levels above expected flood levels).
- Resistance - Construction of a development in such a way to prevent floodwater entering the building and causing damage.
- Resilience - Construction of a development in such a way that even though flood water may enter it, its impact is reduced (i.e. no permanent damage is caused, structural integrity is maintained and drying and cleaning are facilitated).
- Repairable - Construction of a development in such a way that although flood water enters a building, elements that are damaged by flood water can be easily repaired or replaced. This is considered to be a form of flood resilience.

10.26 In some cases it may be possible to raise finished floor levels in new developments sufficiently to avoid being flooded, but this approach is not expected to be available on all sites, and will not be practicable for extensions to existing buildings. The most common approach outlined in FRAs is expected to be a resilience/resistance approach. Examples of measures recommended for consideration include:

- Using concrete floors rather than timber on the ground/basement/lower ground floors;
- Using flood resilient building materials and fittings;
- Locating power sockets above the possible flood levels;
- Incorporating temporary door or air vent flood boards to stop the entry of flood water;
- Sealing entry points for services etc to prevent ingress of flood water
- Fitting non-return valves to prevent sewers surcharging into properties; and
- Signing up to the Environment Agency's free Flood Warning Service, where appropriate.

10.27 In addition to integrating physical flood mitigation measures, some sites will require the FRA to include information on how the occupants would remain safe if the site was impacted by a serious flood event. Basements, lower ground floors and in some cases, ground floor development could be impacted by flood waters if a breach of the tidal defences occurred or if an extreme storm event caused flash flooding in surface water flooding hotspots. FRAs should show how occupants could safely leave the site or if necessary take refuge on-site at a higher floor.

10.28 Consideration of this issue applies not only to new build developments but also conversions, where a single dwelling is converted into flats as this could impact on the ability of occupants in lower flats to stay safe if access to higher floors is removed as a result of the development.

10 Flood Risk and Water Efficiency

Key Principle - FR4

Requirements for Self Contained Basement Flats

New self-contained basement flats will not be permitted in the Environment Agency's Flood Zone 3 areas where there is a risk of rapid inundation by flood waters in the event of a breach of the river's flood defences or in surface water flooding hotspots where the flood hazard rating is defined a significant or higher in the SWMP, unless a satisfactory means of escape can be provided.

10.29 Self-contained basements are classified as highly vulnerable to flood risk, particularly where flood waters could inundate a site at depths and velocities that present a risk to occupiers.

10.30 All developments need to provide safe access/egress or a place of refuge for use in a possible flood event. However, for basement flats, it is vital that there is a way for occupants to escape from their property in the event of a flood incident that requires emergency evacuation of the site. If a flat only has one entrance/exit and this is where flood water would enter the property at velocities and depths that could endanger life, then this sort of development will not be permitted.

10.31 An alternative route out of the property is required and needs to be shown on plans and highlighted in the FRA to demonstrate that escape would be possible in the event of a significant flood event at the site.

Key Principle - FR5

Groundwater Source Protection Zones

Where development is proposed in the Environment Agency's Groundwater Source Protection Zones 1 or 2, measures must be taken to ensure the protection of groundwater supplies.Top of Form

10.32 The Environment Agency has defined Source Protection Zones across England where groundwater sources such as wells, boreholes and springs are used for public drinking water supply. The zones show the risk of contamination from any activities that might cause pollution in the area.

10.33 In H&F, there are currently no Source Protection Zones, so no special measures to protect groundwater are currently required. However, if such Zones are designated in the future, measures would need to be proposed as part of the FRA to show that any development in these Zones would protect and not impact on groundwater resources.

10.34 Further guidance can be found online here: [www.gov.uk/ government/ collections/ groundwater-protection](http://www.gov.uk/government/collections/groundwater-protection)

Key Principle - FR6

Structural Flood-proofing of Subterranean Developments

All developments that include a subterranean element must provide details of the structural waterproofing measures to be integrated to prevent any increase in on or off-site groundwater flood risk.

Flood Risk and Water Efficiency 10

10.35 If a basement is constructed close to or at the same level as the water table then it could act as a barrier and may divert groundwater flows. It could also potentially cause a local rise in groundwater, depending on the site's geology and topography.

10.36 The SFRA identifies that groundwater is a significant potential source of flooding in the borough with the majority of the southern half of H&F being at high risk of groundwater flooding from superficial deposits overlying the London Clay bedrock. It is therefore essential that basements in those parts of the borough identified in the SFRA are constructed to resist ingress of water and also to not increase flood risk for adjacent sites.

10.37 Waterproofing of below ground structures is described in British Standard BS8102-2009, the "Code of practice for protection of below ground structures against water from the ground" which sets out in detail how waterproofing should be undertaken in new and existing buildings.

10.38 BS8102-2009 covers 3 different types of waterproofing technique:

- Type A - Barrier protection
- Type B - Structurally integrated protection
- Type C - Drain protection

10.39 The inclusion of an internal drained cavity protection with a sump and pump for removal of water or its disposal by gravity is the recommended method of protecting basements in most cases. This not only ensures a high level of waterproofing for the new basement but is also capable of managing potential off-site flood risks appropriately, particularly where new development is directly adjacent to existing properties.

10.40 Basements constructed for non-residential uses – e.g. car parking do not necessarily need to be built to the highest standards in terms of water/damp proofing but should still be constructed so that they do not increase flood risk for neighbouring areas.

10.41 Applications that include basements will be required to provide details of the structural measures to be integrated to protect the property and neighbouring properties from potential groundwater impacts. The FRA should refer to groundwater information available for the site and show how this has been used to develop appropriate waterproofing measures. For some sites, it may be necessary to carry out site specific investigations to inform the FRA.

Key Principle - FR7

Protecting Against Sewer Flood Risk

All developments that are classified as 'more' or 'highly' vulnerable to flooding that include proposals at basement or lower ground floor level must install a non-return valve or equivalent to protect against sewer flooding.

10.42 Table 2 above shows the key development types that are classified as 'more' or 'highly' vulnerable. Basement developments are susceptible to sewer flooding so in addition to the structural water-proofing measures outlined above, it is recommended that where kitchens, bathrooms or other water related installations are planned at basement level, that mitigation measures in the form of provision of a pumped solutions or 'active drainage devices' incorporating non-return valves are installed to prevent surcharge flooding from the sewer system during intense storm events.

10 Flood Risk and Water Efficiency

10.43 The use of such devices is particularly important in those areas most at risk of sewer flooding in the borough. The SW6 postcode area is most susceptible to this form of flooding according to the Thames Water data included in the SFRA and SWMP, although other areas in the borough including W6, W12 and W14 all have recorded incidents of sewer flooding over the last 10 years.

Key Principle - FR8

Water and Wastewater Infrastructure

All development proposals will be required to demonstrate that there is sufficient water and wastewater infrastructure capacity both on and off site to serve the development or that any necessary upgrades will be delivered ahead of the occupation of development.

10.44 Thames Water should be consulted at an early stage of the planning process to check whether or not the existing water supply and drainage systems can accommodate the additional demands for drinking water and drainage requirements associated with the development.

10.45 Development proposals, particularly for major sites, must ensure that adequate water supply and wastewater infrastructure capacity are available for the development.

10.46 In terms of wastewater infrastructure, if initial investigations show that there are concerns about the capacity of the existing infrastructure, particularly where combined flows of foul and surface water could put additional pressure on the Counters Creek sewer system that serves much of the borough, then a Drainage Strategy will be required. This should provide details of how the foul/surface water flows will be managed, illustrating any proposed new drains or alterations to the connection points in the existing sewer system. This requirement is in addition to the need for developments to provide details of sustainable drainage measures to manage surface water run-off, in line with the requirements of Local Plan Policy CC4. Where water or wastewater assets cross a site, or lie in close proximity to a site, developers are advised to contact Thames Water Developer Services to discuss any protection measures or build over agreements that may be required.

10.47 Further information on these issues is available from Thames Water Developer Services: <https://developers.thameswater.co.uk>.

Key Principle - FR9

Thames Estuary 2100 Plan Requirements

In line with the requirements of the Thames Estuary 2100 Plan, developments adjoining the river Thames must maintain and where necessary enhance or raise flood defences (or show how they could be raised in the future), demonstrating that they will continue to provide adequate flood protection for the lifetime of the development.

10.48 The Environment Agency released the Thames Estuary 2100 (TE2100) Plan in November 2012 to set out their recommendations for flood risk management for the Thames Estuary through to the end of century and beyond. It primarily covers tidal flooding, although other sources of flooding including high river flows as a result of heavy rainfall and surface water flooding are also considered. The full document is available online here: www.gov.uk/government/publications/thames-estuary-2100-te2100.

Flood Risk and Water Efficiency 10

10.49 In the future, climate change will lead to sea level rises and the TE2100 plan predicts an increase in River Thames water levels. If defences are not raised as outlined in the Plan, there is a severe risk of overtopping of the defences leading to flooding in parts of H&F. However, if the defences are raised as required, then flood risk from the Thames would be considered to be low.

10.50 Examples of requirements for developments directly adjacent to the Thames include the following in terms of showing compliance with TE2100, which should be detailed in the FRA:

- Maintain, enhance or replace flood defences to protect the development for its lifetime
- Either raise flood defences in line with TE2100 requirements or to demonstrate how defences that protect the site can be raised in the future
- Re-align or set back flood defences where this is possible to help provide amenity space, habitats and other environmental enhancements as well as improving access
- Demonstrate that access to flood defences can be improved if necessary including the safeguarding of land for future raising of flood defences or landscaping works/habitat improvements
- Where necessary, make financial contributions towards the potential future costs of constructing flood defences required to protect the site over its lifetime.

Water Efficiency Requirements

Key Principle - FR10

Water Efficiency

All developments must include water efficient fittings and appliances, where provided, in line with London Plan water consumption targets. In addition, major developments and high water use developments must include other measures such as rainwater harvesting and grey water re-use

10.51 Water consumption in London is currently higher than the national average at 164 litres/day per person. The capital's water supply is already under pressure, particularly in years when there are low levels of rainfall. Thames Water, provider of over 75% of London's water supply, projects that by 2020 there will be a significant deficit in the water supply when consumption is projected to outstrip supply.

10.52 Therefore, new developments are required to minimise the use of mains water where possible by implementing water efficiency measures. This will ensure a sustainable and secure water supply for London in the future.

10.53 Residential development should be designed so that mains water consumption meets a target of 105 litres or less per head per day, excluding an allowance of 5 litres or less per head per day for external water use. This target is in line with the 'optional requirement' set out in Part G of the Building Regulations 2010 (as amended in 2016). Developers should maximise the opportunities for water saving measures and appliances in all developments, including the reuse and using alternative sources of water as part of sustainable drainage systems.

10.54 New non-residential developments, including refurbishments, should aim to achieve the maximum number of water credits in a BREEAM assessment or the 'best practice' level of the AECB (Association of Environment Conscious Building) water standards. The AECB standards can also be used to guide the specification of suitable fittings/appliances in residential developments. Further details are available online here: www.aecb.net/publications/aecb-water-standards.

10 Flood Risk and Water Efficiency

10.55 Appendix A of the Building Regulations Part G includes details of a water efficiency calculator. The template provided in the document can be completed to show the expected water use in new dwellings and demonstrate that suitable water efficiency measures have been provided. This template is appropriate for smaller developments where a BREEAM or other sustainability assessment is not necessarily required, but where information on water efficiency should be provided.

10.56 Examples of measures that should be considered for use include the following:

- Low and dual flush toilets - new toilets have a maximum flush of 6 litres. The lowest full flush toilets have a flush of 4 litres. Best practice are dual flush toilets of 4/2 litres;
- taps – water efficient options include spray, aerated, low flow self-closing and infrared controlled appliances as well as the installation of flow restrictors;
- Bathing - showering, excluding with power showers generally uses less than half the water than having a bath. Aerated and low flow showerheads can further reduce water consumption. The installation of a low volume bath can be an alternative;
- Waterless urinals - new urinals are limited to a maximum water use of between 7.5 litres to 10 litres an hour. Therefore waterless urinals can save significant amounts of water and money for businesses. Buildings with high occupancy rate such as schools, hotels and offices can particularly benefit from waterless urinals
- White goods - washing machines can vary from between 6 litres and 20 litres of water per kilogramme of washing and dishwashers can use as little as 10 litres of water per wash;
- Swimming pools and other high water consuming systems - these can generally be provided with water re-circulation, recycling and water recovery systems rather than backwashing or rejecting water to waste.
- Low water use landscaping - integrate dry or low water use gardens, including use of drought resistant plants.
- Rainwater collection - install water butts to collect water from rainwater downpipes to use on gardens.

10.57 For major developments in particular, those with intensive water use such as offices, hotels, buildings used by the public and schools should demonstrate they have actively considered the use of rainwater harvesting and dual potable and grey water recycling systems and integrated them where feasible.

11 Biodiversity

11.1 As a densely urbanised inner London borough, little remains of Hammersmith and Fulham's original natural ecosystem complexes. Despite this, some good quality wildlife habitat can still be found along the borough's waterways and rail tracks and also within its parks, cemeteries and community gardens where these are not over-manicured. The River Thames forms an important 'blue' wildlife corridor and are used by many species of birds, bats, fish and invertebrates to travel across the borough, allowing some species to colonise the borough and adding to local biodiversity.

11.2 A 1988 study⁽¹⁵⁾ of the borough's wildlife habitats identified a total of 225 hectares of green space in the borough which constitutes 14 percent of the total surface area of the borough. A breakdown of this into different habitat types shows that over 60 percent of green space in the borough (150 hectares) comprises formal parkland, sports pitches and amenity grassland. Of the remainder, the majority is made up of grassland (30 hectares) and herbaceous communities (18 hectares). Only around 6 hectares of native woodland remains in the entire borough.

11.3 In this context, opportunities to enhance and create new habitats for biodiversity in the borough will mostly exist by:

- incorporating design measures to increase biodiversity within new developments;
- improving the quality of existing nature conservation areas and green corridors; and
- making existing open spaces more multi-functional and capable of supporting biodiversity.

11.4 The borough's nature conservation areas and green corridors are identified in the Local Plan and the associated Policies Map.

11 Biodiversity

Policy Context - Biodiversity

National policy

The responsibility on local authorities for biodiversity conservation is detailed in section 40 of the Natural Environment and Rural Communities Act 2006. The Act places all public authorities in England and Wales under a statutory duty to have regard to the conservation of biodiversity in exercising their functions⁽¹⁶⁾. The duty aims to raise the profile and visibility of biodiversity, clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making. Section 40(3) of the Act further states that 'conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population of habitat.'

The Wildlife and Countryside Act 1981 provides more general protection for a range of species and habitats.

Chapter 11(paragraphs 109-119) of the National Planning Policy Framework details the national planning policy on biodiversity conservation.

London Plan

The London Plan makes reference to the protection or enhancement of biodiversity in a number of separate policies. These include:

- Policy 7.19 – Biodiversity and access to Nature, which states that "development proposals should wherever possible make a positive contribution to the protection, enhancement, creation and management of biodiversity."
- Policy 2.18 – Green infrastructure – The network of open and green spaces
- Policy 5.3 – Sustainable design and construction
- Policy 5.10 – Urban greening
- Policy 5.11 – Green roofs and development site environs

Local Plan

The council's strategic planning policies aimed at conserving and enhancing the borough's biodiversity are contained in the Local Plan and include:

- Policy OS1 - Parks and open spaces
- Policy OS2 – Access to parks and open spaces
- Policy OS4 - Nature conservation
- Policy OS5 – Greening the borough
- Policy RTC1 - River Thames
- Policy RTC3 – Design and appearance of development within the Thames Policy area.

Key principles

11.5 The key principles listed below focus on protecting existing biodiversity and enhancing levels of biodiversity on development sites in the borough.

Key Principle - BD1

Protection of existing biodiversity

Applicants for development proposals should:

1. ensure thorough initial investigations and/or surveys are conducted on the proposed development site to assess existing levels of biodiversity;
2. provide accurate and up to date survey information with planning applications on existing trees, including protected trees, any habitats or biodiversity features and the presence of plants, invertebrates, amphibians, reptiles, birds or mammals (including bats) on the proposed development site;
3. undertake assessments where surveys confirm the existence of protected or priority species or habitats that detail the proposed development's impact on these species or habitats;
4. ensure that where such assessments demonstrate that species or habitats are likely to be affected by the development, the development where possible avoids adverse effects on these and mitigates any unavoidable impacts arising from the development; and
5. assess the impact of development on nearby nature conservation areas or green corridors.

11.6 All applicants seeking planning permission for proposed developments are encouraged to engage in early pre-application discussions with the council in order to:

- help establish whether any protected species or habitats exist on the proposed development site;
- identify any potential impact of the development on biodiversity; and
- outline the scope of any surveys and assessments that may be needed to support a planning application

11.7 Developers should undertake initial site investigations of the proposed development site to assess existing levels of biodiversity on the site before any demolition or site clearance has commenced and before the layout of the new development has been designed. In particular, the site investigations should assess whether the site contains any protected species or habitats.

11.8 Trees form an important element in biodiversity conservation, providing shelter and food for a range of different species and being of conservation value in their own right. Developers should aim to design the development to maximise the number of trees that will be retained, especially those of conservation and heritage value. Development proposals should also identify suitable locations for tree planting, including those for significant trees wherever possible. The council may require developers

16 Section 40, The Natural Environment and Rural Communities Act 2006, which states that:
 “Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity”

11 Biodiversity

to submit an Arboricultural Implications Assessment and an Arboricultural Method Statement if trees are present on or adjacent to the development site and are likely to be affected by the proposed development.

11.9 Most development sites, including buildings are used or colonised by a range of fauna, flora and fungi species. Developers may need a qualified ecologist to conduct a survey aimed at identifying different protected species present and the potential of the site to support species that may be missed by the survey. Surveys of species and habitats often need to take place at particular times of year and need to be planned in advance. Appendix 2a provides a table showing the appropriate times of year to undertake surveys for different species. It should be noted that if surveys related to the proposed development are to be conducted that are likely to result in an offence under regulation 39 or 43 of the Conservation (Natural Habitats, & c.) Regulations 1994, it is recommended that a licence is first obtained from Natural England. Persons wishing to carry out survey work that could affect animals or plants that are a European protected species should contact the relevant local area team of Natural England.

11.10 The development should be designed and laid out in a manner that avoids harm to the wildlife and habitats in designated nature conservation areas and green corridors. If this is not possible, harm must be minimised and the harm should be compensated for either on the development site or within the area.

11.11 Proposed developments adjacent to or in the vicinity of a designated nature conservation area will also need to ensure that landscaping schemes provided as part of the development do not adversely affect the nature conservation area and are biodiversity friendly. For developments alongside the watercourse, consideration should be given to the requirements of the Water Framework Directive (WFD).

Key Principle - BD2

Protected and Priority Species

Where development proposals involve any of the activities shown in Appendix 2b, a Protected or Priority Species Survey and an associated Assessment will be required with the planning application if:

- **there are reasonable grounds to believe that the site is being used by a Protected or Priority Species; and**
- **the current level of biodiversity of the site is unknown.**

The information gained from the site survey and assessment should be up-to-date and sufficient to allow the development impact to be appropriately assessed.

11.12 There are strong legislative measures in place to conserve Protected or Priority species. Different types of development including the proposed total or partial demolition of buildings as listed in the table in Appendix 2b can impact upon some protected species more than others for example bats and/or nesting birds. Where required, developers should conduct Protected Species surveys and assessments on sites where such developments are planned before any work associated with the proposed development begins. Surveys and assessments should be prepared by qualified ecologists.

11.13 Appendix 2c contains a flowchart providing guidance on the steps developers need to take to ensure the protection and enhancement of biodiversity on development sites.

Requirements for species surveys

11.14 Where species surveys are to be conducted, these should be:

- undertaken and prepared by competent persons with suitable qualifications and experience (such as a member of the Institute of Ecology and Environmental Management) and must be carried out at an appropriate time and month of year, in suitable weather conditions and using nationally recognised survey guidelines or methods where available;
- informed by the results of a search for ecological data from Greenspace Information for Greater London (GiGL), the biological records centre for London, and other environmental organisations, as appropriate. These may include for example:
 - London Bat Group; or
 - the London Natural History Society (LNHS).
- prepared at an appropriate level of detail and must record which species are present and identify their numbers (may be approximate); and map their distribution and use of the area, site, structure or feature (e.g. for feeding, shelter, breeding).

11.15 Further information on appropriate survey methods can be found on the website of the Institute of Ecology and Environmental Management: Sources of Survey Methods www.ieem.net.

11.16 Failure to provide accurate and up to date survey information may be a reason to refuse the registration of the planning application or may result in its subsequent refusal when considered against policy.

Requirements for assessments of species surveys

11.17 The assessment must identify and describe potential development impacts likely to harm the Protected or Priority Species and / or their habitats identified by the survey (these should include both direct and indirect effects both during construction and afterwards). Where harm is likely, evidence must be submitted to show how:

- alternative designs or locations have been considered;
- adverse effects will be avoided wherever possible;
- unavoidable impacts will be mitigated or reduced; and
- impacts that cannot be avoided or mitigated will be compensated.

11.18 The assessment should also give an indication of how species numbers are likely to change, if at all, after development so as to establish whether there will be a net loss or gain.

11.19 The information to be provided in response to the above requirements is consistent with those required for an application to Natural England for a European Protected Species License. For further detailed information see: www.naturalengland.org.uk.

11.20 A Protected or Priority species Survey and assessment may form part of a wider Ecological Assessment and/or part of an Environmental Impact Assessment.

11.21 A full Protected or Priority Species survey and assessment may not be required if:

- the council has stated in writing that no Protected or Priority Species surveys and assessments are required; or
- it is clear that no Protected or Priority Species are present on the development site despite the guidance in Appendix 2 suggesting their likely presence, and the applicant is able to provide evidence with the planning application to demonstrate that such species are absent (this might be in the form of a letter or brief report from a suitably qualified and experienced person, or a

11 Biodiversity

relevant local nature conservation organisation, or where information is obtained from Greenspace Information for Greater London (GiGL); or

- it is clear that the development proposal will not significantly affect any Protected or Priority Species present. In this instance, only limited information needs to be submitted. This information should:
 - a) demonstrate that there will be no significant affect on any Protected or Priority Species present; and
 - b) include a statement acknowledging that the applicant is aware that it is a criminal offence to disturb or harm protected species should they subsequently be found or disturbed.

Key Principle - BD3

Designated sites, Priority Habitats, Biodiversity Features

If the application is likely to affect any of the Designated Sites, Priority Habitats or biodiversity features listed in Appendix 2d, a survey and assessment for the relevant feature(s) must be submitted with the application.

A site survey and assessment will not be required where the applicant is able to provide copies of pre-application correspondence with the council's ecologist or ecological advisor and/or other competent parties (e.g. Natural England or the London Wildlife Trust), showing that they are satisfied that the proposed development will not affect any of the areas listed in Appendix 2d.

11.22 In addition to Protected and Priority species, the council will have regard to the protection of the borough's nature conservation areas, Priority Habitats and green and blue corridors within the borough.

Development adjacent to the River Thames

11.23 The River Thames constitutes the borough's 'blue' corridor. The River Thames provides habitat for a wide range of species and act as important wildlife corridor, allowing a large number of species to travel through the borough. In some instances, the river provides the means for species to enter and establish themselves within the borough and other parts of London. In order for the River Thames to continue functioning as an habitat and corridor for wildlife, new development along the River Thames should be carried out taking into account the following ecological principles:

- Enhance the function of the River Thames as a wildlife corridor and introduce measures to encourage riparian biodiversity;
- Investigate the managed retreat of the riverbank and establish areas of biodiversity friendly landscaping where practicable;
- No loss of Local Sites of Nature Conservation Importance;
- No negative ecological or environmental impact on Local Sites of Nature Conservation Importance in proximity to the river;
- Retention, protection and enhancement of all existing priority habitats and species;
- A net increase in open space including natural and semi-natural green space;
- The incorporation of green infrastructure and SUDs in developments;
- Green roofs and other green design features are required on all buildings, where practicable. Building design should also incorporate nesting features (e.g. bird boxes) into the structure of buildings where practicable;

- Light spillage should be reduced within and adjacent to areas of ecological value, including green / blue ribbons (corridor linkages); and
- An ecological and environment impact assessment must be submitted with any major planning application

Details of survey requirements for Designated Sites and Priority Habitats

11.24 Where surveys of Designated Sites and Priority Habitats are to be conducted, these should be:

- prepared by competent persons with suitable qualifications and experience (such as a member of the Institute of Ecology and Environmental Management) and must be carried out using nationally recognised survey guidelines or methods where available. ⁽¹⁷⁾
- informed by the results of a search for ecological or geological data from Greenspace Information for Greater London (GiGL), the biological records centre for London, and other environmental organisations, as appropriate. These may include:
 - London Wildlife Trust
 - London Bat Group
 - London Natural History Society (LNHS)
 - Local Regionally Important Geological Sites (RIGS) Groups
 - prepared to an appropriate level of detail and must:
 - record which habitats and features are present on, and where appropriate, around the site;
 - identify the extent and area of the site, protected habitat and/or biodiversity feature; and
 - map the distribution of the site, protected habitat and/or biodiversity feature on site and/or in the surrounding area shown on an appropriate scale plan.

11.25 ⁽¹⁸⁾

Details of Assessment requirements for Designated Sites and Priority Habitats

11.26 Assessments prepared in relation to the survey should identify and describe potential development impacts likely to harm Designated Sites, Priority Habitats, and listed Biodiversity Features. This should include both direct and indirect effects occurring during construction and after development. Where harm is likely, evidence must be submitted to show:

- How alternative designs or locations have been considered;
- How adverse effects will be avoided wherever possible;
- How unavoidable impacts will be mitigated or reduced; and
- How impacts that cannot be avoided or mitigated will be compensated.

11.27 The assessment should give an indication of the likely change in the area (hectares) of Priority Habitat(s) on the site after development such as to whether there will be a net loss or gain. Proposals are encouraged that will enhance, restore or add to designated sites, Priority Habitats, or Biodiversity Features.

17 Further information on appropriate survey methods can be found on the website of the Institute of Ecology and Environmental Management Sources of Survey Methods: www.ieem.net.

18 Information on internationally and nationally designated sites can be found at: www.natureonthemap.org.uk. Information on locally listed nature conservation areas can be found on the council's web site at: www.lbhf.gov.uk.

11 Biodiversity

Sharing of Ecological Data Findings

11.28 The council will provide a copy of any ecological data including survey and assessment findings submitted as part of a planning application to Greenspace Information for Greater London (GiGL), London's Open Space and Biodiversity Records Centre. Developers should be aware that this data will be made publicly available once it is transferred to GiGL. This data exchange will help to increase the knowledge, protection and enhancement of biodiversity in the borough and across London generally.

11.29 In order to ensure consistency with GiGL's data management, developers should provide a table of data containing the following minimum information, as an appendix to any ecological or survey reports:

- Grid Reference
- Date
- Species
- Observer (the person who made the record)
- Location name
- Abundance (if recorded)

11.30 ⁽¹⁹⁾

11.31 Unless otherwise stated, all data will be managed and made available in accordance with GiGL's accessing data policy (which includes putting it on the National Biodiversity Network). Further information is available on GiGL's web site.

Key Principle - BD4

Retention of Biodiversity

Development proposals on all land should protect any significant biodiversity and/or habitat features present on the site and avoid harm to any nearby nature conservation areas. Where appropriate to the scale and nature of the site, new development should be designed and located in a manner that retains, as far as practicable, existing biodiversity and habitats and natural landscape features on the site.

11.32 The built up nature of the borough and the absence of major nature conservation sites makes it important that new developments are sympathetic to preserving existing nature conservation interests on the site such as locally significant trees and natural landscape and habitat features. Early consideration of the need to preserve any significant nature conservation interest on the site should allow innovative design solutions to be devised that are cost effective, add to the character of the development and will not impair the efficient functioning of the development.

19 A standard data entry form in Excel format showing the required and all optional fields can be downloaded from the GiGL web site at: www.gigl.org.uk.

Key Principle - BD5

Invasive plant species

Where a site is to be redeveloped, developers should identify the presence of any invasive plant species at an early stage and introduce measures to prevent the spread of these species during and after construction.

11.33 Animals and plants that have been introduced to an area where they do not normally occur may become invasive. Some vigorous or invasive non-native plant species in particular can impact negatively upon biodiversity by out-competing native flora and rapidly dominating local ecosystems. This can then affect other species, resulting in an overall decline in biodiversity. Section 14(2) of the Wildlife and Countryside Act 1981 makes it an offence to, 'plant or otherwise cause to grow in the wild' any plant species listed in Schedule 9 of the Act.

11.34 Under part II of schedule 9 of the Wildlife and Countryside Act (as amended) 1981, landowners are required to eradicate the following invasive plant species that are likely to be found on development sites in Hammersmith and Fulham:

- Japanese knotweed (*Fallopia japonica*);
- Himalayan Giant Hogweed (*Heracleum mantegazzianum*).

11.35 Additional invasive non-native plant species likely to exist in development sites in the borough include:

- Himalayan balsam (*Impatiens glandulifera*);
- Tree of Heaven (*Ailanthus altissima*);
- False Acacia (*Robinia pseudoacacia*)
- Alkanet (*Pentaglottis sempervirens*)
- Butterfly bush (*Buddleia davidii*)
- Snowberry (*Symphoricarpos albus*)

11.36 Developers should also ensure the following aquatic plant species are not introduced to any water bodies, including garden ponds on or adjacent to the development site:

- Curly waterweed (*Elodea crispata*)
- Pennywort (*Hydrocotyle ranunculoides*)
- New Zealand pygmy weed (*Crassula helmsii*)
- Water-primrose (*Ludwigia grandiflora*)
- Parrot's feather (*Myriophyllum aquaticum*),
- Chinese water fern (*Azolla filiculoides*)

11.37 A further list of invasive non-native species (INNS) will be produced by the council and updated as required. ⁽²⁰⁾

11.38 The Environment Agency provides advice on the measures to control invasive species. Where it is intended to use herbicides or pesticides close to water, an application must be made to the Environment Agency.

20 Further London wide information is available from the London Invasive Species Initiative (LISI) and the Invasive Non-Native Species Secretariat: <https://secure.fera.defra.gov.uk>.

11 Biodiversity

Key Principle - BD6

Impact on nature conservation areas

Proposals for major development or development sites close to a nature conservation areas, will normally require an Ecological Management Plan (EMP). An EMP should include:

- details of ecological surveys undertaken and the results of these surveys;
- measures to protect species and habitats during site preparation, construction and occupation;
- measures to increase the ecological value of the site once the development is complete, to ensure a net gain for biodiversity;
- measures to ensure the biodiversity value of the site is maintained for the long term after development is complete, including a monitoring program. The developer and / or site manager must ensure the EMP is handed over and explained to any maintenance company or staff responsible for maintaining landscaping and / or gardens and buildings.

11.39 EMPs are normally prepared for developments that have or will attract biodiversity to the development site or developments that will exert an impact upon sites containing biodiversity. The preparation of an EMP will help ensure that the needs of biodiversity are considered after the development has been completed and can also establish long term biodiversity friendly management and maintenance regimes regardless of a change in property ownership.

11.40 A simplified version of the EMP should also be provided for householders and other occupiers of the site, explaining how biodiversity is being protected and enhanced on the site.

Key Principle - BD7

Enhancement of Biodiversity

Development proposals, (excluding householder applications) should include design measures that will enhance, restore or create features or habitats used by wildlife.

Appropriate to the scale, type and potential impacts of the proposed development on biodiversity, developers should create new and/or enhance existing green infrastructure and habitats in or around new developments by incorporating some, or all of the measures listed below:

- Creating new green infrastructure, including green corridors linking habitats on and next to the site so that wildlife can move between habitats;
- Creating new habitats such as hedges and ponds that will benefit wildlife. Often even small scale, cost effective habitat creation can provide significant biodiversity gains and greatly add to the visual interest of the development;
- Ensuring that landscape schemes, including ornamental landscaping and management routines, benefit wildlife and biodiversity;
- Integrating nesting and roosting opportunities for bats and birds into buildings and other built structures;
- Wherever appropriate, developers should consider how their landscape proposals relate to and contribute to meeting the London Plan targets for the improvement and expansion of priority habitats; and
- Designing external lighting to minimise light spill and other light pollution.

For open spaces around development, the emphasis should be on developing multi-functional spaces that can also effectively function as habitats for biodiversity.

For strategic development sites, a Green Infrastructure Strategy setting out the key principles for green infrastructure development on the site will be required. This may be part of a Concept Statement or development brief that will influence the site planning and design and help ensure green infrastructure is incorporated from the early stages of the project. Concept statements can also be used as the basis for the Design and Access Statement.

Where on-site improvements to green infrastructure are not possible, developer contributions or suitable green infrastructure provision in other areas of the borough may be required.

11.41 If considered early in the design process, and taking account of the scale and type of the proposed development, the adoption of suitable design measures can effectively enhance biodiversity in the borough in a cost effective manner. This enhancement will usually result from protecting existing biodiversity and:

- increasing the area of existing habitat(s) and /or;
- creating new functional habitat(s) and /or;
- implementing specific measures that will benefit certain species including protected or priority species.

11.42 Depending on their nature and scale, new development proposals present a wide range of opportunities to enhance local biodiversity. These opportunities may include:

11 Biodiversity

- the installation of bird nesting bricks/boxes and bat roosting boxes;
- the adoption of biodiversity friendly landscape management strategies;
- the incorporation of green and/or brown roofs; and
- the creation of new multi-functional, biodiversity-friendly open spaces.

11.43 Simply increasing the number of plant species on the development site will not necessarily be considered as enhancement of biodiversity.

11.44 Any biodiversity surveys and associated assessments of species and habitats that may be required may include recommendations that can contribute to this enhancement. If an assessment is prepared, it should also give an indication of how species numbers are likely to change, if at all, after development.

11.45 The council will aim as far as possible to enhance the overall level of biodiversity across the borough by maximising opportunities for incorporating biodiversity features into new developments as part of its commitment to good design.

11.46 Greenspace Information for Greater London (GiGL) has prepared London Habitat Suitability Maps for the London Biodiversity Partnership. These maps can be used to help identify the most suitable type of habitat for a particular site to create or restore priority habitats. Indicative maps are available on GiGL's website at: www.gigl.org.uk.

11.47 In cases where the site is not covered by the London Habitat Suitability Maps, large-scale habitat creation should reflect the landscape character of the area, as identified in Natural England's London's Natural Signatures project. ⁽²¹⁾

11.48 Green infrastructure is the network of functional green space which supports natural and ecological processes and is integral to the health and quality of life of communities. It includes:

- Parks and Gardens – urban parks, Country and Regional Parks, formal gardens;
- Amenity Greenspace – informal recreation spaces, housing green spaces, domestic gardens, village greens, urban commons, playing fields, other incidental space, green roofs;
- Natural and semi-natural urban greenspaces - woodland and scrub, grassland (e.g. downland and meadow), heath or moor, wetlands, open and running water, wastelands and disturbed ground), bare rock habitats;
- Green corridors – rivers and canals including their banks, road and rail corridors, cycling routes, pedestrian paths, and rights of way;
- Other - allotments, community gardens, city farms, cemeteries and Churchyards. ⁽²²⁾

11.49 Depending on its scale and nature, new development can provide varied opportunities to enhance and increase the borough's green infrastructure. New developments may also contribute towards the enhancement of green infrastructure by including elements such as :

- Naturalised Sustainable Urban Drainage System such as swales, rain-gardens and ponds;
- Green roofs and living walls; and
- Tree planting schemes (including street trees).

11.50 Natural England's Natural Development project has been set up to demonstrate how both large and small scale development can incorporate green infrastructure. ⁽²³⁾

21 This is available at the Natural England web site at: www.naturalengland.org.uk.

22 Green Infrastructure Guidance (Natural England 2008)

23 More information is available from Natural England's web site at: www.naturalengland.org.uk.

11.51 Where on-site improvements to green infrastructure are not possible, developer contributions or suitable green infrastructure provision in other areas of the borough may be required.

11.52 Modern buildings typically do not offer any external nooks, surfaces or entry points for birds or bats and are effectively impenetrable to species such as swifts, swallows and sparrows that rely on built structures for nesting and roost sites, contributing to their decline. Developers should consider how to incorporate nesting and roosting opportunities for birds and bats into the structure of new buildings. This should include the use of commercially available 'swift bricks' or other similar products that are incorporated into the walls of buildings. Where this is not feasible the attachment of nest boxes and bat roost boxes to the external walls of new buildings should be considered. The roofs of tall buildings may be suitable for the installation of nesting structures for Peregrines or other raptors.

11.53 Care should be taken to avoid positioning nest bricks or boxes on the side of buildings that get direct sunlight. ⁽²⁴⁾

11.54 In order to minimise stress and disturbance to local wildlife, it is important to carefully manage any potential light pollution issues associated with new development and impacting upon nearby areas where wildlife is found. This is especially important in a heavily built up borough like Hammersmith and Fulham where areas where wildlife refuge areas are relatively scarce and disturbance from light pollution to existing natural areas can have a significant adverse impact on local wildlife.

24 For more information see 'Biodiversity for Low and Zero Carbon Buildings: A Technical Guide for New Build', RIBA, March 2010 and other sources such as the Royal Society for the Protection of Birds website at: www.rspb.org.uk and the London's Swifts web site at: www.londonsswifts.org.uk.

11 Biodiversity

Key Principle - BD8

Biodiversity - Landscaping and planting

Developers should incorporate existing natural features that enhance biodiversity such as trees, hedges, scrub, tall grass and ponds into the landscape scheme for the site. The council will discourage landscaping schemes utilising extensive areas of impermeable surfaces, lawn and formal garden areas or plant species that do not enhance biodiversity - this includes the use of artificial grass. Landscaping schemes should seek to include ecological features of natural woodlands such as over-storey tree canopies, middle storey shrubs and under-storey ground covering plants to maximise the capacity of the landscaped area to support diverse biodiversity. Some species provide higher quantities of nectar and these should be chosen where they can be demonstrated not to become invasive non-native species.

Development sites adjacent to, or in the vicinity of a designated nature conservation area, green corridor or green / blue infrastructure, should use native plant species, preferably of local provenance in landscape schemes. Where appropriate a green buffer should be planted between the River Thames and any development site.

For other development sites, aim for at least 50 per cent of plants used for landscaping to be native (both species and planted area) and preferably of local provenance.

Where non-native plants, grasses, shrubs and trees are used in landscape schemes, they should be valuable for wildlife and non-invasive.

The council will encourage the planting of biodiversity friendly hedges and/or planted fences or walls as an alternative to fencing to create wildlife friendly boundaries to development sites.

11.55 The built up nature of the borough means that space for biodiversity is very limited. It is therefore important that new open spaces created as a result of development are multi-functional and are designed to be capable of providing functional habitat for a diverse variety of species. Accordingly, the council will seek to ensure that landscape designs for new development will:

- create habitat niches for a range of wildlife species;
- use selected plant species that provide food and shelter for local wildlife; and
- are conducive to biodiversity friendly management regimes concerning pruning, mowing, fertilising, pesticide and water use.
- provide flowering periods scattered throughout the year and have food sources accessible to native fauna, i.e. not be composed of double flowered cultivars, that prohibit access to nectar or do not have nectaries. It is also important to ensure there is sufficient food for bees, butterflies and other pollinators.
- Assess the suitability of riverside sites for inclusion of green buffers between developments and the river.

11.56 Hedges are particularly suitable for creating habitats in heavily built up boroughs where lack of space is an issue. Hedges can significantly add to local biodiversity if appropriate hedge species are used and biodiversity friendly management routines followed, including allowing hedges to grow to a suitable size.

11.57 Where hedges are not practical, wildlife friendly fencing which has a 150mm gap between the fence and the ground and does not have any spikes along the top or bottom of the fence will be encouraged. Wherever possible, all fencing or walls should be planted with biodiversity friendly climbing plants and fitted with bird nesting boxes to create living surfaces that will soften the edges of the development, provide valuable habitat and create additional visual interest.

11.58 Some examples of biodiversity-friendly landscaping measures are listed below:

- Encouraging the natural urban flora of derelict plots through appropriate management;
- Making or restoring a wildlife pond;
- Opening culverts or re-naturalising river channels;
- Enhancing the wildlife value and sustainability of flower beds;
- Implementing changes in mowing regimes, shrubbery management or herbaceous planting; creating wild flower meadows, either through minimising turfed areas and sowing wild flower seed and/or relaxing the management of existing turf;
- Greening of buildings with climbing plants to provide vertical habitat;
- Creating natural habitats such as woodland, hedges, ponds, wildflower meadows, areas of long grass and log piles;
- Leaving rough grassland areas with appropriate mowing regimes as wildlife corridors;
- Planting hedgerows or shrubbery to improve nesting habitat for birds;
- Linking habitats and wildlife corridors within the development site to habitats and wildlife corridors adjacent or near to the site;
- Avoiding the use of peat, herbicides and pesticides and implementing a chemical free management regime;
- Aiming to safely compost and reuse green waste to best practice guidelines from the site wherever possible, and to not spread pathogens; and
- Avoiding the use of artificial grass products which reduce biodiversity without providing any of the ecosystem services that real grass does.

Key Principle - BD9

Biodiversity and Tree Planting

The council will expect developers to plant trees where appropriate and will itself continue to plant appropriate trees in suitable locations. Normally native species (approximately 70 native tree type species and hybrids) that maximise their value to biodiversity should be planted. If felling is necessary, trees must be replaced with other suitable species, normally native species that will benefit biodiversity. Newly planted trees must be nurtured until well-established and subsequently maintained.

11.59 Trees provide a valuable contribution to local amenities and the street scene, allowing improvements to the environmental quality of the area to be achieved at a relatively low cost. The council will continue to plant new trees as part of its on-going tree planting programme, but sub-surface services or nearby foundations may make it impractical to plant trees in some streets. New development schemes provide the opportunity for onsite landscaping including tree planting. Tree species that are chosen for planting should be suitable for their location and as far as possible be indigenous species and of maximum benefit to biodiversity.

11.60 A few examples of native tree species with an approximate associated species number in the UK are:

- Quercus robur (English Oak) – 300 spp.

11 Biodiversity

- *Betula pendula* (Silver Birch) – 250 spp.
- *Salix caprea* (Pussy Willow) – 180 spp.
- *Alnus glutinosa* (Common Alder) - 150 spp.

11.61 A few examples of non-native trees with an approximate associated species number in the UK are:

- *Platanus X hispanica* (Plane Tree)- 60 spp.
- *Gingko biloba* (Maidenhair tree) - 50 spp.
- *Ailanthus altissima* (Tree of Heaven) – 70 spp.

11.62 The loss of trees will nearly always result in a deterioration of environmental character and will not be acceptable without good cause, particularly if subject to a Tree Preservation Order. Pruning or lopping should be investigated as an alternative. A tree that is felled should normally be replaced with a tree species that optimises its value to biodiversity and is suitable to the area in all other respects. As far as practicable, native tree species should be used. Any works affecting trees in conservation areas must be notified to the council six weeks in advance.

Key Principle - BD10

Biodiversity and Sustainable Drainage Systems

Wherever possible new developments should incorporate Sustainable Drainage Systems (SuDS) that will enhance biodiversity. The council may require developers to provide a suitable SuDS design and management statement or management plan. The level of detail in the plan is likely to include:

- A description of the area including a map;
- Proposed design of the SuDS;
- Species and habitat targets;
- Provision for the ongoing management of new sites;
- Persons responsible for undertaking the management;
- Means of reviewing the management plan.

11.63 Sustainable Drainage Systems (SuDS) can be particularly beneficial in higher density areas because they can assist in managing surface water run off and enhance biodiversity. Biodiversity-friendly SuDS designs such as grass swales, rain-gardens, infiltration strips, reedbeds and ponds will provide habitats for amphibians, birds, mammals and insects whilst also contributing to landscape settings and possibly open space requirements.⁽²⁵⁾

Key Principle - BD11

Green and Brown Roofs

Developers should seek to incorporate biodiversity friendly green or brown roofs and living walls into new developments.

25 For further information see Chapter 9 on SuDs and refer to www.ciria.org.uk/suds/ and www.susdrain.org.

11.64 Developers should aim for all roofed areas to be greened (including areas used for renewable energy generation such as solar PV panels but excluding other non-green fixtures such as air conditioning units).

11.65 There are two main types of green roof, intensive roofs and extensive roofs. In accordance with Environment Agency advice the council encourages the following standard on the proportion of intensive and extensive green roofing in new buildings:

- 25 per cent of the green/living roofs to be intensive/semi-intensive
- 75 per cent extensive green roofs to be designed for biodiversity

11.66 Intensive roofs - Intensive and semi-intensive roofs are similar to gardens and parks and are valuable for biodiversity. Public access is allowed on these roofs (to residents for example) and the green roof is in effect a roof garden. The council will expect intensive roofs to be designed to the following criteria:

- Intensive roofs should aim to cover at least 70 per cent of the roof area in soil, vegetation and water features. This will reduce water run-off from the roof and ensure the roof's effectiveness in the drainage strategy for the development;
- At least 25 per cent of the vegetation should be native. The use of native vegetation should be maximised; (preferably endemic native species that occur on or within 250m of the development site) No more than 50 per cent of the vegetation used should be non-native; The use of non-native vegetation should be minimised;
- At least 25 per cent of the vegetation should be of known value to wildlife; The use of vegetation of known value to wildlife should be maximised and be 100% where possible;
- No more than 25 per cent of the vegetation should be purely ornamental; The use of purely ornamental vegetation should be minimised;
- A range of bird nesting boxes, invertebrate boxes, logs and log piles should be included to create habitat niches for biodiversity.

11.67 Extensive roofs - Extensive green roofs are low-nutrient, well-drained habitats that offer an opportunity to replicate ecological characteristics of brownfield sites and other such habitats. Access is generally restricted to maintenance staff and they are less costly to create than intensive roofs.

11.68 These roofs may also be 'brown' roofs. A brown roof is one where plants are allowed to colonise naturally rather than being planted. In general, extensive green roofs can be installed on a variety of roofs, both flat and sloping. For slopes greater than 9.5 degrees or 17 percent (2:12 slope) additional structures to prevent slippage of materials will be needed. For slopes greater than 30 degrees or 58 per cent (7:12 slope) specialised media and retention devices will be required. The impact of increased slope on the distribution of water within the planting media should be taken into account in the species used on different sections of the roof.

11.69 The council will expect extensive roofs to be designed to the following criteria:

- The substrate depth should be between 75mm and 150mm ;
- A single substrate can be used, but to provide the greatest benefit to biodiversity, a variety of substrates should be used. It is important that designers are aware that the choice of substrate should not undermine the potential of the roof systems to act as an interceptor and source control mechanism for rainfall;
- A mix of wildflowers and sedums. The wildflower species should preferably be species that already occur on or within 250m of the development site. Where these are not available species should be chosen to maximise the ecological value of the living roof. based upon the guidance provided by the Environment Agency below. A complete list of these species and their ecological value is provided in Appendix 2.

11 Biodiversity

- at least 10 species of high ecological value
 - at least 10 species of medium ecological value
 - at least 10 species of standard ecological value
- Areas of sand, bare shingle and a series of individual logs and log piles should also be provided to create additional habitat.

11.70 Developers should make use of the guidelines detailed in the Environment Agency publication on living roofs, available at: www.environment-agency.gov.uk and the Living Roofs web site: www.livingroofs.org.

11.71 Due to their relatively large surface areas, Living or 'Green' roofs and 'Living Walls' can provide significant additional habitat for wildlife, as well as reduce water runoff and insulate buildings. This assumes greater significance in a built up borough, where additional land for biodiversity is not readily available. Additionally, green roofs can positively contribute to the sustainable management of urban water runoff and can help to insulate the building from temperature extremes.

11.72 Wherever possible the council will encourage the design of green roofs that provide food and habitat for the local Biodiversity Action Plan Priority species including the:

- House Sparrow (*Passer Domesticus*)
- Stag Beetle (*Lucanus Cervus*)
- Bumble Bee (*Bombus Humilis*)
- Black Redstart (*Phoenicuros Ochruros*)

Expertise

11.73 It is advisable for an ecologist to be present during the installation of an extensive roof as roofing contractors often lack the required expertise to install the ecological elements of green roofs. In general where a green roof is required as a condition for granting planning permission it should be designed to ensure that it reduces the rate of surface water run off, minimises energy use and benefits biodiversity.

- Developers will be expected to provide:
- The ecological rationale for the selection of the plant species;
- A landscape plan and cross-section of the roof to show how the green roof has been designed;
- A long term maintenance plan to ensure the functionality of the green roof;
- An assessment of the roof's capacity to intercept runoff for Sustainable Drainage Systems.

Living walls

11.74 Developers should consider how living walls and/or fences may be incorporated into proposed developments taking into account the scale and nature of the development. The plants chosen for a living wall should be beneficial for biodiversity by offering one or more of the following:

1. Roosting and nesting sites for birds – generally the thicker the climber, the more opportunities for roosting and nesting will be provided;
2. Nectar sources for insects - plants that flower early or late in the season, such as *Hedera helix* (ivy) are particularly valuable;
3. Food - Fruit for birds and insects;
4. Shelter - Hibernation sites for insects such as butterflies and lacewings.

11.75 Living walls protect buildings from weathering and temperature fluctuations and can also benefit wildlife by providing habitat and food for birds and invertebrates. A living wall can be created by:

- Growing self-clinging climbing plants such as ivy up walls;
- Providing a wooden or metal trellis attached to the wall for plants to climb up;
- Growing plants in a specially designed hydroponic system attached to the wall.

11.76 Further information on designing living walls can be found in: Living Roofs and Walls : Technical Report: Supporting London Plan Policy (GLA, February 2008) and Planting Green Roofs and Living Walls by Nigel Dunnnett and Noël Kingsbury (Publ.2004, Timber Press).

11 Biodiversity

12 Sustainable Design and Construction

12.1 New developments use resources, create waste, emit pollution to air, land and water and contribute to climate change. This SPD covers the design and construction aspects of developments and aims to ensure that new developments do not unnecessarily or unreasonably impact on the local environment, including residents, and seeks to control and minimise the use of resources and pollution impacts.

12 Sustainable Design and Construction

Policy Context - Sustainable Design & Construction

National Policy

The National Planning Policy Framework (NPPF) highlights that the purpose of planning is to help achieve sustainable development. The planning system is expected to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs, while protecting and enhancing the natural and historic environment.

The 'environmental role' of planning is defined as contributing to protecting and enhancing the natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.

As well as considering the potential impacts of new developments once they are operational, this is also taken to mean that the construction (including demolition) process should be carried out in such a manner that it protects the environment and people's quality of life, minimising impacts.

London Plan

The main policy in the London Plan dealing with sustainable design and construction issues is Policy 5.3 Sustainable Design and Construction which requires the highest standards of sustainable construction to improve the environmental performance of new developments.

There are also a number of related policies that help to achieve new developments with high levels of sustainability, including the policies relating to sustainable energy use and reducing CO2 emissions (particularly policies 5.2, 5.5, 5.6, 5.7 and 5.9), green infrastructure and biodiversity (policies 5.10, 5.11 and 7.19), flood risk, sustainable drainage and water resources (policies 5.12, 5.13, 5.14, 5.15), waste and recycling issues (policies 5.16, 5.17, 5.18 and 5.20), contaminated land (policy 5.21), safe and inclusive developments (policies 7.2 and 7.3), improving air quality and reducing noise (policies 7.14 and 7.15).

Local Plan

The council's Spatial Vision for the borough includes an aspiration for H&F to become the greenest borough by 2035. Key commitments in terms of delivering an environmentally sustainable borough include that new buildings will be energy and resource efficient and much more of the borough's waste will be sustainably managed and there will be increased recycling. All development in the borough, both buildings and infrastructure will have been intelligently designed for durable and resilient futures, supporting the move to a low-carbon economy and taking account of climate change impacts, particularly the risk of flooding. Sustainable Drainage Systems will be common place and major developments in the regeneration areas will be promoted as zero carbon exemplars. The amount of open space in the borough will have increased through provision in mixed use schemes in our regeneration areas. By 2035, most areas of the borough will be of high environmental quality.

The main Local Plan policy is **CC2 Ensuring Sustainable Design and Construction** requires the **implementation of sustainable design and construction measures in all major developments and encourages their use in other developments.**

Other policies that also promote sustainable design and construction include **Policy HO11 Detailed Residential Standards** which requires a range of sustainability measures; **Policy DC3 Tall Buildings**, which includes reference to the need to demonstrate the use of sustainable design and construction

Sustainable Design and Construction 12

measures; Policies in the Environmental Sustainability section of the Local Plan are relevant as well, **CC1 and CC3 - CC13**; Green and Open Space policies **OS4** Nature Conservation and **OS5** Greening the Borough.

Major Developments

Key Principle - SDC1

Implement London Plan Sustainable Design & Construction Requirements

Implementation of the London Plan sustainable design and construction policies to ensure developments incorporate sustainability measures.

Minimising Energy Use

12.2 All new developments create demand for energy use. Reducing this demand by integrating energy efficiency is essential to minimise the need to generate energy. This helps to minimise emissions of CO₂ and reduces the impacts of climate change.

12.3 Sustainability Statements provided with major developments should provide a full Energy Assessment which includes details of the energy efficiency measures to be implemented. Guidance on how to minimise energy use is provided in this document in Chapter 7 and is not repeated here.

12.4 Sustainability Statements (or equivalent assessments such as BREEAM) should summarise the proposed approach in relation to energy use and CO₂ reduction, as recommended in the Energy Assessment.

Making the Most Effective Use of Resources

12.5 London imports most of the materials it requires for new developments to be built, and most of the resources that are required are limited and non-renewable and some are running out. Developments therefore need to be designed and constructed in a way that minimises demands on resources such as land, water, energy and construction materials.

12.6 Water is one of the most important resources. London's water consumption already outstrips supply on occasions and as population growth continues, it is essential to manage demand by reducing water consumption and using water efficiently. New developments should maximise the opportunities to include water saving measures and appliances, including the collection of rainwater for re-use where this is possible. Residential schemes in particular should be designed to minimise internal water consumption to a rate of 105 litres or less per person per day. Non-residential developments are not expected to meet the same target, but should aim to achieve the maximum number of water credits in a BREEAM assessment (where submitted) or the 'best practice' level of the Association of Environment Conscious Building www.aecb.net/ water standards.

12.7 Appendix A of the Building Regulations Part G includes details of a water efficiency calculator. The template provided in the document can be completed to show the expected water use in new dwellings and demonstrate that suitable water efficiency measures have been provided. This template is appropriate for smaller developments where a BREEAM or other sustainability assessment is not necessarily required, but where information on water efficiency should be provided.

12.8 Chapter 10 on Flood Risk Management and Water Efficiency provides further information on water efficiency requirements, including examples of measures that should be considered for implementation.

12 Sustainable Design and Construction

12.9 Another resource that it is important to make efficient use of during the construction of new developments is aggregates. The London Plan sets a target that 95% of construction, demolition and excavation waste is recycled/reused by 2020, with 80% of that waste being reused as aggregates.

12.10 The use of new aggregates in construction projects should be minimised. One method of doing this is where a development requires the demolition of an existing building or buildings, that consideration should be given to implementing a "deconstruction" process rather than demolition. Rather than demolishing the building are removing all the material from site to be treated as waste, the deconstruction process requires the dismantling of buildings and sorting of materials on-site into those that can be re-used, including materials that can be used as aggregates as part of the construction of the new development. If this is not an option, the use of aggregates that have been recycled from other sites should be prioritised over use of newly quarried or primary aggregate materials.

12.11 Sustainability Statements (or equivalent assessments such as BREEAM) should summarise the proposed approach in relation to use of resources.

Sourcing Building Materials Sustainably

12.12 Environmental impacts of development can be minimised in terms of the building materials used by specifying materials that have low environmental impacts. Complete information on individual building materials and their environmental impacts is not provided here, but comprehensive information is available in the BRE's Green Guide to Specification (<https://www.bre.co.uk/greenguide>).

12.13 However, some general issues that should be considered when specifying materials for developments include:

- Minimising the use of new aggregates and re-using material on site;
- Using timber from sources acceptable to the Forest Stewardship Council (FSC) or if this is not possible then use timber from a known temperate source to avoid the use of illegally logged timber;
- Avoiding use of materials from other vulnerable habitats – e.g. peat;
- Not using insulation materials containing ozone depleting substances or those with the potential to contribute to climate change;
- If practical, try to source materials from local suppliers;
- Including some materials derived from recycled/re-used content if possible (refer to the WRAP toolkit for further information)
- If demolition is to be carried out, appraise the possibility of 'deconstructing' and saving materials for re-use on site; and
- Avoiding the use of materials with high embodied energy.

12.14 Information on the measures taken to ensure that materials used to build new developments have been sourced with reference to their environmental impacts should be included in the Sustainability Statement or BREEAM Assessment if this is used to guide a sustainable design approach.

Using Prefabrication Construction Methods

12.15 The use of prefabrication construction methods - i.e. the fabrication of building elements off-site which are then brought to site for final assembly can help reduce environmental impacts, including the generation of waste and pollution. Most elements of a new building (to some degree) are capable of being manufactured off-site and this can not only improve a building's environmental performance, but also reduce the time required to construct a development.

Sustainable Design and Construction 12

12.16 Developers are therefore encouraged to design and construct schemes so that they include as many pre-fabricated building elements as possible. Sustainability Statements (or equivalent assessments such as BREEAM) should summarise the proposed approach in relation to use of prefabrication methods.

Reducing Pollution

12.17 New developments have the capacity to create environmental pollution impacts that need to be considered during the design and construction process to ensure that these are avoided or minimised as far as possible. Typical impacts can include air pollution, noise, water pollution and light pollution. Contaminated land is also an issue that will need to be investigated. Further guidance on requirements in relation to Demolition Method Statements and Construction Management Plans are provided in Appendix 4.

Air

12.18 In terms of the potential air quality impacts that new developments can cause, detailed guidance is provided in Chapter 6 of this SPD on how developments should be designed and constructed to minimise emissions and also mitigate potential impacts and exposure. Developers are to design their schemes so that they are at least 'air quality neutral' and should also follow best practice in controlling and minimising dust and emissions during the construction and demolition phases. Where occupants of a new development are considered to be sensitive receptors in terms of poor air quality in the vicinity of the development, exposure reduction measures will also be required.

12.19 Where a detailed Air Quality Assessment is provided with a planning application it is not necessary to reproduce this in full in the Sustainability Statement/BREEAM Assessment, but it can be summarised so it is clear that this aspect has been covered.

Noise

12.20 New developments can be the source of noise (or vibration) impacts and/or they can be subject to the impacts of noise as well. Noise should be reduced at source and then designed out of a scheme to reduce the need for mitigation measures. Areas identified as having positive sound features or as being 'quiet areas' should be protected from noise enhanced, where possible.

12.21 Measures that should be implemented to control noise/vibration include:

- noise and vibration sensitive development should be located in the most appropriate locations and protected against existing and proposed sources of noise and vibration through careful design, layout and use of materials, and by ensuring adequate insulation of the building envelope and internal walls, floors and ceilings as well as protecting external amenity areas;
- housing, schools, nurseries, hospitals and other noise-sensitive development will not normally be permitted where the occupants/users would be affected adversely by noise, both internally and externally, from existing or proposed noise generating uses. Exceptions will only be made if it can be demonstrated that adequate mitigation measures will be taken, without compromising the quality of the development; and
- noise generating development will not be permitted, if it would be liable to materially increase the noise experienced by the occupants/users of existing or proposed noise sensitive uses in the vicinity.

12.22 Where necessary, applicants will be expected to carry out noise assessments and provide details of the noise levels on the site. Further details on guidance to mitigate noise impacts of development are included in Chapter 5 of this SPD.

12 Sustainable Design and Construction

12.23 Noise impacts are also an issue during the construction/demolition phase. While some level of disturbance may be unavoidable, developers and their contractors are expected to minimise noise nuisance and disturbance to neighbours during site works. British Standard 5228 “Noise control on construction and open sites” provides guidance on controlling noise (and vibration) impacts.

12.24 If impacts are inadequately controlled and are affecting neighbouring properties, the council can serve a notice under the Control of Pollution Act 1974 and impose requirements on contractors including time restrictions, plant and machinery restrictions and noise limits. Examples of how noise can be kept to a minimum on a construction site include:

- Identifying noise generating activities and substituting with low noise alternatives, if possible;
- Siting noisy equipment away from noise sensitive premises, such as housing;
- Not operating noisy equipment, such as generators and pumps etc unnecessarily;
- Complying with working hours restrictions (e.g. no noisy works outside the hours of 8am to 6pm weekdays);
- Using screening, isolation or other acoustic design solutions (e.g. use a separate compound for all cutting/grinding, well away from neighbouring properties); and
- Not arranging deliveries to the site too early in the morning.

12.25 The Considerate Constructors Scheme (www.ccscheme.org.uk) helps construction sites minimise noise/vibration impacts, as well as other environmental impacts. Information on the measures to be implemented on site during both construction/demolition and the operational phase should be provided in the Sustainability Statement.

12.26 Where a detailed Noise Assessment is provided with a planning application it is not necessary to reproduce this in full in the Sustainability Statement/BREEAM Assessment, but it can be summarised so it is clear that this aspect has been covered.

Water

12.27 Without the incorporation of good environmental practices, new developments could cause impacts on the local water environment, for example by allowing discharge of pollutants from the site. This could be an issue during both the construction and operational phases of a development.

12.28 The traditional drainage system present on site or installed as part of new development should be capable of managing water supply and wastewater disposal without causing pollution incidents. However, during intense rainfall events, pollution can be washed into waterways such as rivers. One way to control this source of pollution is to use Sustainable Drainage Systems (SuDS), as covered in Chapter 9 of this SPD, to help to minimise pollution in urban runoff and improve water quality. SuDS are often considered just in terms of their flood risk management function, but they can provide a range of benefits. In terms of helping reduce water pollution in improve water quality, SuDS measures such as the following should be considered for inclusion into developments:

- vegetation which slows runoff and helps filter out pollutants;
- Use of temporary storage in ponds and other still water which allows contaminated sediment to settle out;
- infiltration trenches to remove pollutants; and
- Use of porous surfaces traps pollution and will allow for natural biological break down.

12.29 Where a detailed Flood Risk Assessment or Sustainable Drainage Strategy is provided with a planning application it is not necessary to reproduce this in full in the Sustainability Statement /BREEAM Assessment, but it should be summarised so it is clear that this aspect has been covered.

Sustainable Design and Construction 12

12.30 In terms of managing potential impacts at the construction/demolition phase and preventing contamination of ground and surface water bodies, developers must ensure that appropriate mitigation measures are implemented to control pollution at source. Surface water bodies and groundwater are protected by regulations, although some discharges to watercourses may be permitted. The Environment Agency (EA) is the main regulatory body on this issue and should be contacted for further advice on the management of discharges from construction sites, particularly where there are large-scale demolition / construction works close to the river. Unregulated discharges to surface and ground water should be avoided at all times. Further advice from the EA on pollution prevention can be found on their website here: www.environment-agency.gov.uk.

12.31 Possible mitigation measures for implementation during the construction/demolition phase include the following:

- oil separators;
- clear marking/signage of drainage systems;
- correcting wrong connections to the drainage systems;
- bunding of chemical, fuel and oil delivery storage areas;
- designating and bunding of areas for cleaning activities; and
- bunding of construction sites.

Light

12.32 New developments that include proposals for external lighting (including illuminated signs and advertisements, security and flood lights) should control the potential adverse impacts that it could cause. Details should be submitted that show that external lighting proposals are:

- Appropriate for the intended use;
- Provides the minimum amount of light necessary to achieve its purpose;
- Energy efficient; and
- Provide adequate protection from glare and light spill, particularly to nearby sensitive receptors such as residential properties and Nature Conservation Areas, including the River Thames.

12.33 The details of external lighting should be developed in line with the recommendations of the Institute of Lighting Professionals - www.theilp.org.uk/resources/free-resources/ilp-guidance-notes.

12.34 Full details of the proposed approach does not have to be included in the Sustainability Statement/BREEAM Assessment, but it can be summarised so it is clear that this aspect has been covered.

Land

12.35 Contaminated Land issues are covered in detail in Chapter 8 of this SPD. Developers should set out how existing land contamination will be addressed prior to the commencement of their development. Any potentially polluting uses are to incorporate suitable mitigation measures. In a heavily built up borough such as Hammersmith & Fulham where there has been a long history of heavy industry use, land contamination is known to exist. It is therefore important that any land that is known or suspected of being contaminated or where a sensitive use is proposed is dealt with before the development takes place. Where a site is affected by contamination it is the developer's or landowner's responsibility that the site is developed safely.

12 Sustainable Design and Construction

12.36 Early identification of land contamination issues enable the consideration of mitigation measures, phasing and the potential to implement less expensive, and more sustainable, in-situ clean up technologies. An assessment of the risks associated with developing contaminated or potentially contaminated land is essential to inform decisions about the appropriate level of treatment, clean up or sustainable remediation that may be required. As highlighted in Chapter 8, details of a site's land contamination issues should be prepared by a suitably qualified person and provided by the developer to support a planning application. The extent of works required to remediate the site are based on the proposed use of the site. As a minimum the works should result in the site no longer being classed as contaminated under Part IIA of the Environmental Protection Act 1990.

12.37 Where a detailed Contaminated Land Assessment is provided with a planning application it is not necessary to reproduce this in full in the Sustainability Statement/BREEAM Assessment, but it can be summarised so it is clear that this aspect has been dealt with.

Minimising Waste and Promoting Recycling

12.38 It is essential that new developments support and promote recycling activity and they should be designed with reference to the council's requirements in this respect. Details on the standards that must be met for provision of waste and recycling storage facilities, including storage size and appropriate location of recycling and refuse storage containers, internally as well as externally are provided in Chapter 14, Waste Management.

12.39 Where new developments include access to a garden, space should be provided for a compost bin to encourage food and garden waste recycling. The need to provide adequate waste and recycling storage should be considered early in the design process to ensure these requirements are factored into the development in a way that ensures it is as convenient to recycle as it is to manage waste. In larger developments, the location of external storage areas should consider the noise generated from the frequency of use of this area and its servicing as well as the requirements of the waste/recycling collection operator to pick up the materials.

12.40 Waste and recycling are also important issues during the construction phase of developments. As highlighted in relation to guidance provided on Sourcing Building Materials Sustainably, developers should maximise the use of existing resources and materials and minimise waste generated during the demolition and construction process. This can be achieved by implementing the Waste Hierarchy:

1. Reduce;
2. Reuse (prioritise on-site reuse of demolition materials, followed by off-site reuse);
3. Recycle (prioritise on-site recycling, then off-site recycling);
4. Resource recovery (for energy generation processes – fuels, heat and power); and
5. Disposal.

12.41 Site Waste Management Plans should be used to provide a structure for systematic waste management at all stages of a project's delivery, focusing mainly on site practices. They help reduce costs of waste management and can also increase profit margins. A Site Waste Management Plan should include the following:

- The types and quantities of waste that will be generated
- Resource management options for these wastes
- Proposed methods of disposal and location
- Proposed means of transport of disposal; and
- How to monitor/report on resource use/waste generation.

Sustainable Design and Construction 12

12.42 A guidance document on Site Waste Management Plans is available from WRAP: www.wrap.org.uk. Some waste processing activities may need a license or an exemption from the Environment Agency, who should be contacted for further information on licensing requirements. Emissions from vehicles removing waste materials should be minimised and where feasible, the river should be used to transport waste away from site.

12.43 It is also recommended that major schemes sign up to the Considerate Constructors Scheme (www.ccscheme.org.uk) as this helps construction sites minimise waste production, as well as helping minimise other environmental impacts. Information on the measures to be implemented on site during both construction/demolition and the operational phase should be provided in the Sustainability Statement.

12.44 Full details of the proposed approach in terms of minimising waste and promoting recycling does not have to be included in the Sustainability Statement/BREEAM Assessment, but it can be summarised so it is clear that this aspect has been covered sufficiently.

Conserving and Promoting Biodiversity and the Natural Environment

12.45 Development proposals must be designed and constructed in a way that is sensitive to the need to conserve and promote biodiversity and the natural environment. A development should not cause the net loss of biodiversity or habitats and where possible should create an increase in the quantity and quality of biodiversity on the site.

12.46 Certain species and sites are protected under UK and European legislation. Natural England (www.naturalengland.org.uk) can provide a full list of protected species and advise on how to protect them. The Biodiversity guidance in Chapter 11 of this SPD also provides detailed information on sites that are important in terms of nature conservation.

12.47 Developers should adhere to the following hierarchy when considering biodiversity on their development site:

1. Avoid adverse impacts
2. Minimise impacts and provide on-site mitigation measures
3. In exceptional cases where options 1 and 2 are not possible, provide appropriate compensation

12.48 Biodiversity impacts should be avoided or reduced as far as reasonably possible. This can be achieved by carrying out appropriate ecological surveys in advance of any planning application to guide and inform the design of the development. Priority should be given to retaining any existing valuable habitat, vegetation, species etc and where possible providing 'green corridors' to connect existing areas of nature conservation importance. New habitats should also be provided where possible as part of the new development. This can be done by integrating ecologically sensitive landscaping, including water features or new habitat provided on buildings, such as in the form of green roofs and walls. These features can potentially be incorporated with above ground Sustainable Drainage Systems (SuDs) which would help contribute to mitigating surface water flood risks.

12.49 Full details of requirements are provided in Chapter 11 on Biodiversity and are not repeated here. The Sustainability Statement/BREEAM Assessment should summarise the relevant information on the measures taken to provide biodiversity benefits.

Ensuring Developments are Comfortable and Secure

12.50 Inclusion of measures as outlined in the guidance provided on the Secured by Design website is recommended. This not only makes new buildings safer and more secure and resilient to crime, it has also been shown to provide environmental benefits. Buildings that are protected better against crimes such as break-ins, burglary and criminal damage are more resource efficient as there is less of a need to carry out repairs etc to deal with losses and damage caused by criminal activities. The

12 Sustainable Design and Construction

website provides guidance on all aspects of design and layout that impact on the creation of a safe and secure environments, including road layout, footpath design, communal areas, dwelling boundaries, car parking and lighting.

12.51 A safe and secure building is one that will help make it comfortable for users. Comfortable design should also take into account the need to avoid creating adverse local climatic conditions. The GLA's SPG on Sustainable Design and Construction notes that where a proposed development is significantly taller than its surrounding environment, developers should carry out an assessment of its potential impact on the conditions at ground level, and ensure the resulting design of the development provides suitable conditions for the intended uses.

12.52 Other effects buildings can have on the local climate include:

- Overshadowing and reducing access to sunlight
- Making it warmer, either through the heat released from any operating plant or from the materials forming the building as they cool down at night. This contributes to the urban heat island effect which needs to be minimised
- Making it cooler through the effects of including vegetation or water

12.53 These effects should be considered during the design of a development. Information on the measures that have been designed into the development should be provided in the Sustainability Statement/BREEAM Assessment to show that the requirement to ensure new developments are comfortable and secure has been considered and appropriate measures included.

Avoiding Impacts from Natural Hazards

12.54 New developments should be designed to cope with natural hazards such as flood risk, over-heating and drought. These risks are also ones that are expected to increase as a result of climate change impacts, so it is important that developments are designed and constructed to be resilient to these impacts in the long-term.

12.55 Chapter 10 provides detailed guidance on how new developments should assess flood risks from all potential sources and integrate appropriate flood mitigation measures to ensure that developments manage flood risk. The same chapter also provides guidance on water efficiency measures which help to minimise water use and therefore reduce the risks of drought.

12.56 Where a Flood Risk Assessment is provided with an application, full details of the proposed proposed mitigation measures do not have to be included in the Sustainability Statement/BREEAM Assessment, but they can be summarised so it is clear that this aspect has been covered.

12.57 Developments should also include measures that prevent overheating for the lifetime of the scheme. The London Plan sets out a Cooling Hierarchy that should be followed in choosing the most appropriate methods of preventing overheating. These should be passive rather than active measures wherever possible, i.e.

- Avoid designing small south facing units
- Use materials with a high thermal mass
- Use green roofs and green walls to keep the heat out, and keep the building and its surroundings cool
- Use materials with high albedo surfaces
- Locate spaces and uses that need to be cool or that generate heat on the north side of development

Sustainable Design and Construction 12

- Use smaller windows on the south and western elevations with low g-value glazing
- Use carefully designed shading measures, including balconies, louvres, internal or external blinds, shutters, trees and vegetation
- Design the building and its internal layout to enable passive ventilation, including openable windows, a shallow floor plan, high floor to ceiling heights, the stack effect, a double façade
- Minimise internal heat gains by using low energy equipment, including energy efficient lighting and insulating hot water pipes and infrastructure as well as thermal stores
- Design in vegetation and water features where feasible to provide passive cooling.

12.58 Information on overheating issues are most likely to be covered in detail in the Energy Assessment so do not need to be reproduced in full in the Sustainability Statement/BREEAM Assessment.

Key Principle - SDC2

Sustainability Statement Requirements

Requiring Sustainability Statements (or equivalent assessments such as BREEAM) for all major developments to ensure the full range of sustainability issues has been taken into account during the design stage.

12.59 All applications for major development proposals must provide a Sustainability Statement which demonstrates how the scheme has integrated the sustainable design and construction issues highlighted in Local Plan Policy CC2 and London Plan Policy 5.3, as discussed above.

12.60 Alternative methods of assessing sustainability such as BREEAM will also be accepted as a way of demonstrating the measures to be included. BREEAM can only be used to guide the design of non-residential developments. For major residential schemes, the design can be developed with reference to the GLA's SPG on Sustainable Design and Construction, identifying how the best practice targets are met wherever possible.

12.61 The new Home Quality Mark (HQM) may also be considered as a way of measuring residential developments. If the HQM is used, it is recommended that a 4 star rating is aimed for. For BREEAM assessed developments, the aim should be to achieve an "Excellent" rating.

12.62 A Sustainability Statement will not necessarily provide all the required information or meet the required targets in the Local Plan for all other policies - e.g. on carbon reduction or sustainable drainage matters, and additional information such as Energy Assessment and SuDS Strategy will be required to show compliance with other Policies in the Local Plan.

Minor Developments

Key Principle - SDC3

Sustainability in Minor Developments

The integration of sustainable design and construction measures will be encouraged in all other (i.e. non-major) developments, where feasible.

12 Sustainable Design and Construction

12.63 The main requirements outlined in this section apply to major developments, however some of the measures outlined above are also viable in smaller scale developments. These are encouraged for all other developments where they can be integrated without breaching the requirements of other Local Plan policies - e.g. particularly those relating to design and conservation matters.

13 Transport

Transport

13.1 The London borough of Hammersmith and Fulham is located on the western edge of inner London in a strategic location on the transport routes between central London and Heathrow airport. The orientation of the borough is north to south, with most major transport links, both road and rail, carrying through-traffic from east to west. It suffers from some of the worst congestion in London. Road traffic is one of the main causes of carbon dioxide emissions, poor air quality and noise pollution in the borough.

13.2 Most of Hammersmith and Fulham has good public transport apart from pockets in the south and particularly north of the borough where residents have relatively poor levels of accessibility.

13 Transport

Policy Context - Transport

National Policy

The National Planning Policy Framework (NPPF) encourages sustainable transportation. One of the key planning principles as set out in Paragraph 17 is to *actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable...*

NPPF paragraphs 29 to 41 contain the details for promoting sustainable transport and the important role this has in facilitating sustainable development and also in contributing to wider sustainability and health objectives.

NPPF Guidance (March 2014) sets out the overarching principles of Travel Plans, Transport Assessments and Statements.

London Plan

The Mayor recognises that transport plays a fundamental role in addressing the whole range of his spatial planning, environmental, economic and social policy priorities. Chapter 6 of the London Plan, which contains London's Transport policies sets out the objective - that London should be:

A City where it is easy, safe and convenient for everyone to access jobs, opportunities and facilities with an efficient and effective transport system which actively encourages more walking and cycling, makes better use of the Thames, and supports the objectives of this Plan.

Development proposals in Hammersmith and Fulham should adhere to London Plan policies as appropriate when submitting an application. In relation to transportation policies key London plan Policies include:

- 6.1 (A Strategic Approach - Part A)
- 6.2 (Providing Public Transport Capacity and Safeguarding Land for Transport - Parts A and B)
- 6.3 (Assessing Effects of Development on Transport Capacity - Parts A, B and C)
- 6.5 (Funding Crossrail and Other Strategically Important Infrastructure - Parts B and C)
- 6.9 (Cycle - Part B)
- 6.10 (Walking - Part B)
- 6.12 (Road Network Capacity - Part B)
- 6.13 (Parking - Parts C and D)
- 6.14 (Freight - Part B)
- 6.15 (Strategic Rail Freight Interchanges - Parts A and B)
- Chapter 6 Addendum to Parking Policy Table 6.2 (Car Parking Standards: Designated Blue Badge Parking for residents developments Maximum Parking Standards: Parking for retail; commercial; hotel and leisure uses; emergency services facilities - All)
- Chapter 6 Addendum to Parking Policy Table 6.3: Cycle Parking Standards - All

Local Plan

The council's Strategic Objective for transport is included as part of the overall objective for *Delivering an environmentally sustainable borough.*

Objective 14 states the intention *to ensure the development of a safe, sustainable transport network that includes improvements to public transport, cycling and walking infrastructure which will improve transport accessibility and local air quality and reduce traffic congestion and the need to travel.*

Local Plan borough wide policies for transport are contained in **T1 – T6**. **Appendix 7** set out Car Parking Standards and **Appendix 8** contains Cycle Parking Standards. These are as set out in The London Plan.

There is also reference to transportation matters in the following Local Plan policies: **HO2** - Housing Conversions and Retention; **HO4** - Housing Quality and Density; **HO6** - Accessible Housing; **HO9** - Student Accommodation; **DC11** - Basements and Lightwells; **RTC1** - River Thames; **RTC2** - Access to the Thames Riverside and Foreshore; **Policy CC4** Minimising Surface Water run-off with Sustainable Drainage Systems.

Where the development is located in a regeneration area, the council will expect the development to adhere to the Local Plan policies for these areas and associated Strategic Sites as set out in:

Strategic Policy WCR - White City Regeneration Area, including Strategic Site policies WCRA1 - White City East; WCRA2 - White City West, Shepherd's Bush Market and adjacent Land.

Strategic Policy HRA - Hammersmith Regeneration Area, including Strategic Site policies HRA1 - Town Hall Extension and adjacent land, Nigel Playfair Avenue; HRA2 - A4, Hammersmith Flyover, Hammersmith Gyratory and adjoining land.

Strategic Policy FRA - Fulham Regeneration Area including Strategic Site Policy FRA1 - Earl's Court and West Kensington Opportunity Area.

Strategic Policy SFRRRA - South Fulham Riverside Regeneration Area, which includes SFRRRA1 - Imperial Gasworks National Grid.

Key Principle - TR1

Transport Assessments

When applying Local Plan Policy T2, the council expects Transport Assessments and Transport Statements to be produced in accordance with Transport for London's Transport Assessment Guidance.

13.3 The level of detail required within a Transport Assessment (TA) and Transport Statement (TS) will be dependent upon the size/type of scheme. Applicants are encouraged to discuss with the local authority the proposed approach at pre-application stage.

13.4 The applicant will be required to produce a scoping study which describes the proposed approach, discusses the issues likely to influence the proposed development and identifies key measures which will help reduce dependency on the car.

13.5 Other key points that should be included as part of any TA are as follows:

- Highways – determine capacity of existing road links and junctions using existing flows and find reserve capacities available utilising appropriate packages as necessary (such as OSCADY, PICADY, ARCADY, LINSIG TRANSYT, VISSIM and PARAMICS). Giving careful consideration to the objective of restraining traffic and allocating road space made available by restraint policies

13 Transport

to 'essential' traffic (including buses, cyclists and pedestrians) determine assignment of peak and off peak vehicular trips to the road network. The assessment should include the commercial vehicles that will be required to service the development.

- Road safety measures – propose local traffic safety environmental improvements for the surrounding area (where appropriate) and test network setting out the assumptions made.
- Identify Mitigation Measures – propose mitigation measures where a development has a negative impact.
- Safety audit – where a proposed development will impact on the local highway network in a manner which could have implications for safety, a safety audit will be required.
- Pollution – at each stage of the traffic assignment modelling the impact of the generated traffic on air pollution and noise should be taken into account where practical.

Key Principle - TR2

Travel Plans

Travel plans should be produced in accordance with Local Plan Policy T2 and TfL's guidance on Travel plans 2013.

In general, travel plans submitted along with an initial application will be in outline form. However, where the occupant is known or where the application is for the expansion of an existing use, a full travel plan will be required.

The Travel Plan will be secured by a Section 106 Agreement in the first instance.

A Construction Travel Plan is required for applications for major development and should be included as part of The Construction Management Statement for applications involving basement extensions.

13.6 A travel plan is a long-term management strategy for an organisation or site that seeks to deliver sustainable transport objectives through an action plan that is regularly reviewed. The travel plan should set achievable and time specific targets, objectives and monitoring requirements. The travel plan should include a series of measures, management and funding details that aim to deliver the stated objectives and targets, which will be monitored to ensure implementation. Where funding is provided as part of a travel plan a Section 106 Agreement should be provided. In the absence of a Section 106 Agreement a condition should be applied to planning permission.

13.7 Where an outline travel plan is submitted a timetable for implementing an iTrace compatible travel survey and a date that the full travel plan will be completed should be included. The outline travel plan should include the measures that will be in place on completion of the development to encourage sustainable modes of travel for future occupants.

13.8 All travel plans should include appropriate methods of monitoring and enforcement. In general full travel plans should be submitted no later than six months after 90% occupation of the development and the travel plan must be updated and a travel survey submitted at three and five year periods of completion of the development. A full travel plan should include the roles and responsibilities of a travel plan co-ordinator.

13.9 The contact details of the Travel Plan Co-ordinator should be sent to LBHF and the West Trans Monitoring Officer (Westtranstravelplans@ealing.gov.uk) at least two months prior to the occupation of the development. A named contact or nominated individual is needed in the interim until the appointment of the Travel Plan Co-ordinator.

13.10 All education applications will be expected to provide an outline school travel plan as part of the TA, to help reduce the potential negative impact that such developments can have on the road network and provide an appropriate mechanism for supporting individual sustainable journey plans.

13.11 A large amount of material is available on the council's website regarding school travel plans. Advice on travel plans is available from the council's travel plan adviser. TfL has also produced useful guidance: Delivery Plan for Schools and Young People 2014/15 update.

13.12 As contained in Local Plan Policy DC11- Basements and Lightwells, a construction traffic management plan is a required component of the construction management statement for basement proposals. This should ensure that traffic and construction activity does not cause unacceptable harm to pedestrian, cycle, vehicular and road safety.

Key Principle - TR3

Vehicle parking standards Including car parking permit free

Development in areas well connected by public transport will be expected to be car-free, with no parking provided, other than for disabled people. Proposals for residential development in areas of PTAL 1-2 may be issued residential parking permits. In these circumstances, this will require an assessment to ensure that the level of on-street overnight parking resulting does not result in parking stress. This will be assessed on a case by case basis.

Where a development is accepted as only partly car free the smaller residential units will generally be considered to be permit free.

Holders of disabled persons Blue Badge parking would be excluded from car permit free arrangements. However developers are expected to address the needs of Blue Badge holders by provision of appropriate facilities as set out in key principle TR6 below.

13.13 The notional on-street overnight parking capacity in any street, or part of a street will be calculated as follows:

- The total length of kerb-line will be measured for each side of a street between intersecting street, measuring from the near kerb-line of the intersecting street at each end (or to the "dead-end", if appropriate).
- The following lengths of kerb-line will be identified, immediately prior to (or following) a survey of vehicles parking in the street, and excluded:
 - (i) lengths of kerb-line subject to yellow line parking/waiting restrictions in force between 2300 hours and 0700 hours;
 - (ii) lengths of kerb-line within 3.5 metres of the kerb-line of an intersecting street;
 - (iii) lengths of kerb-line adjacent to a "narrowed" carriageway;
 - (iv) lengths of kerb-line which have been "built-out"
 - (v) lengths of kerb-line which have been "dropped" to provide crossovers or pedestrian crossing points;
 - (vi) lengths of kerb-line adjacent to a "dead-end" of street (normally 3.5 metres from the "dead-end", subject to no double-counting);

13 Transport

- (vii) reserved spaces (i.e. for people with a disability, doctors or diplomats);
 - (viii) “zig-zag” markings at pelican/zebra pedestrian crossings;
 - (ix) within 15 metres of traffic signals; and
 - (x) other lengths of kerb-line not available overnight kerb-side parking, including temporary obstructions such as road works, which must be specifically identified in the survey results
- the length of kerbside space available for overnight kerbside parking will be calculated by subtracting the lengths of kerb-line identified in bullet point 1 (after discounting any “double-counting”) from the total length of kerb-line bullet point 2
 - the notional on-street overnight parking capacity will be calculated by dividing the length of kerb-side space (in metres), which is available for overnight kerbside parking, by 5.0 – thereby allowing a notional parking space of 5.0 metres per car;
 - The street (or identified part of a street) will be surveyed between 0300 hours and 0500 hours on a weekday night (i.e. a night between midday on Monday and midday on Friday) to determine the number of vehicles (excluding two-wheeled vehicles) actually parked at the kerbside. (Such times have been identified as producing the normal maximum on-street overnight car-parking demand).
 - The level of on-street overnight parking availability/stress may be identified by expressing the number of vehicles parked as a percentage of the notional capacity.

Key Principle - TR4

Dimensions of Car Parking Spaces

The dimensions of all car parking spaces should enable easy access to and from the vehicle, taking account of needs of users and the constraints of the parking area.

The council will expect the following dimensions to be achieved:

Dimension for a parking bay

- **To be laid out as a rectangle at least 4.8m long x 2.4m wide. This can be provided at an angle for echelon parking.**

Dimension for a off-street parking on the curtilage of a property

- **This should achieve the minimum width of 2.3 m but be of a length (likely to be over 4.8m) to prevent overhang of the vehicle over the adjacent public highway.**

13.14 The requirement for curtilage parking has been derived from the basic dimensions set out above plus recognition that most curtilages are used for refuse storage and cycle parking. This type of parking may also require occupants to walk around the front or back of the vehicle to possibly close the gates of the property. It also recognises that some motorists do not wish to park immediately abutting their property to avoid damage to this or their property.

13.15 The design of a garage needs to allow not only for the width of the car but also near-side clearance, the opening of the car doors and to accommodate a full range of car sizes. Therefore, single garages must have a minimum length of 5m to ensure that the entire vehicle can be accommodated and a minimum width of 2.7m.

13.16 The dimensions for Blue Badge parking spaces are contained in KP6 Blue Badge parking.

13.17 In order to ensure that there is no detrimental impact on the highway in terms of operation and on-street parking, where parking is reduced a car parking management plan should be provided. This plan should include detailed information as to how spaces will be managed and allocated. A car parking management plan should be secured by condition.

Key Principle - TR5

Car Clubs for New Developments

Where appropriate and in accordance with the aims of the London Plan the council will encourage the provision of car club bays, especially those with restricted parking.

13.18 The size of development will determine the number of car club bays and these can be provided on a phase by phase basis. The council will annually review the level of car clubs in the borough to ensure sufficient car club provision exists.

13.19 Payment of a new car club will be sought through the council's planning obligations where the qualifying thresholds are met. The payment will cover the cost of a new vehicle(s) and the cost of amending (if necessary) the existing or the provision of providing a new traffic order to provide a car club bay. The developer should first investigate providing the car club bay on site; on-street should be considered as the last resort.

Key Principle - TR6

Blue Badge Parking

Blue Badge parking should be provided in accordance with Local Plan Policy HO6 - Accessible Housing and Policy T5 - Parking for Blue Badge Holders. The detailed requirements are set out in Local Plan Appendix 7- Car Parking Standards. Parking spaces for disabled people should preferably be provided on-site.

Any spaces required for disabled people should also conform to the London Plan standard of 2.4m wide by 4.8m long with a space 1.2m wide provided between the designated spaces and the rear outside traffic zone. This is to enable a disabled driver or to get in or out of a vehicle and access the boot safely.

13.20 Local Plan requirements for Blue Badge holders are in conformity with London Plan Chapter 6 Addendum to Parking Policy Table 6.2.

13.21 The provision of bays will be monitored to ensure they are provided.

13.22 Space designated for disabled people should permanently retained and be located as close as possible to the entrance of the building and on firm level ground.

13.23 Car parks with pay-on exit barriers that offer free car parking to Blue Badge holders should display signs to indicate where Blue Badge holders can obtain tickets.

13.24 However, private garages for wheelchair users should have a minimum width of 4.2m and garages designed for lifetime homes should be provided at 3.3m.

13 Transport

13.25 Blue Badge holders are considered to be persons holding a personal Blue Badge permit as car drivers or passengers.

13.26 Further information on disabled parking can be found in The Mayor of London's Accessible London SPD (Paragraph 4.3.7-4.3.23). (Add Link)

13.27 There are many building control standards for disabled parking including:

- BS8300:2009 + A1: A1:2010 for current parking standards and key issues.
- BS 9266 2013 Design of Accessible Housing (Paragraph 5.2.1 - Communal Parking, Paragraph 5.2. - Designated accessible parking bays, Paragraph 5.3 - Setting down points, Annex A - Car parking Management).
- Part M Building Regulations (Vol 1: Dwellings and Vol 2 buildings other than dwellings).

Key Principle - TR7

Electric Vehicles

The requirement for the number of electric vehicle parking spaces for both residential and commercial uses is contained in Local Plan Appendix 7. The requirements are as follows:

Residential

- **20 per cent of all spaces must be for electric vehicles with an additional 20 per cent passive provision for electric vehicles in the future.**

Retail

- **10 per cent of all spaces must be for electric vehicles with an additional 10 per cent passive provision for electric vehicles in the future.**

Employment Uses

- **20 per cent of all spaces must be for electric vehicles with an additional 10 per cent passive provision for electric vehicles in the future.**

13.28 Local Plan requirements for the number of electric vehicle parking spaces are in conformity with London Plan Chapter 6 Addendum to Parking Policy Table 6.2. In addition and in accordance with London Plan Parking Policy 6.3D developments must ensure that 1 in 5 spaces (both active and passive) provide an electrical charging point to encourage the uptake of electric vehicles. A clear footway for pedestrians and level access routes will be required around electric vehicle parking bays.

Key Principle - TR8

Motorcycle Parking for residential and non residential developments

The council will require motorcycle parking facilities in developments which require a Transport Assessment or in non - residential developments one space per 600 m2, which ever is greater.

13.29 Motorcycle use is increasing and therefore increasing demand for motorcycle parking. If parking facilities are not available this could result in inappropriate parking of motorcycles on-street, which is likely to create hazards to other road users.

Key Principle - TR9

Cycling Environment Review System

A 'Cycling Environment Review' should normally be included as part of the Transport Assessment. Developers are expected to provide funding in order to resolve any unacceptable issues that are identified as part of a CERS assessment. The funding to resolve these issues will be secured by condition or Section 106 agreement.

13.30 A Cycling Environment Review System (CERS) must assess the quality of any cycling environment. This analysis enables objective comparisons of the environment along different routes, so that any impacts, issues or substandard areas can be identified. Development proposals should help remove barriers to cycling and create a healthy environment.

Key Principle - TR10

TfL or other Cycle Hire Schemes

A contribution will be sought from developments for TfL or other cycle hire schemes. Where appropriate land will also be sought and safeguarded to facilitate their delivery.

13.31 The scheme promotes the Mayor's vision of a sustainable transport and low emission transport system within London by actively encouraging cycling, which is set out in the Mayor's Cycle Strategy (Cycling Revolution London 2010). This along with other initiatives are considered to bring significant social, environment, health and financial benefits to the capital.

13.32 The expansion of the TfL Cycle Hire Scheme is in line with the borough's Local Implementation Plan (LIP) and borough's objective, which are:

- support sustainable population and employment growth in regeneration areas;
- improve efficiency of roadworks;
- improve quality of streets;
- to improve air quality in the borough; and
- to make it easier for everyone to gain access to transport opportunities;
- control parking space fairly;
- reduce numbers killed and injured.

Key Principle - TR11

Cycling Improvements and The Cycle Superhighway Scheme

A contribution will be sought from developments located near to the proposed Cycle Superhighway routes or any complimentary routes to the Cycle Superhighway.

13 Transport

13.33 Cycle superhighways are cycle routes running from outer London into and across central London. TfL consultation on new routes and upgrades to existing routes can be found on the TfL website.

13.34 All Cycle Superhighways designs are subject to scheme approval and works approval by TfLs Network Assurance to ensure that they comply with TfL's Network Management Duty under Traffic Management Act 2004. Any Cycle Super Highway will be subject to extensive public consultation with the final agreement approved by both the council and TfL on the boroughs roads.

Key Principle - TR12

Walking

The council supports the principles set out in within The Mayor's Manual for Streets Guidance (2017) and Healthy Streets for London (2017) and expects the developer to apply these principles to any new scheme.

13.35 The council encourages the design and layout of new development to facilitate direct, convenient and safe walking routes to town centres and local neighbourhoods, and to schools, local shops and services and public transport facilities.

13.36 The safety and convenience of pedestrians will be a prime consideration and whilst the council welcomes shared surface schemes as part of any proposal the scheme will be required to be demonstrated that conflicts between vehicles and pedestrians will be minimal and speeds of vehicles will be controlled and that the needs of disabled people are fully taken into account in the design of the schemes.

13.37 Within residential development areas of communal open space should be readily accessible from every dwelling by a safe pedestrian route.

13.38 In all developments where residential accommodation exists (or is to be provided) above ground floor retail or business premises, pedestrian access to those residential units shall either be provided or be retained to the street frontage of the building unless physically impractical. Where such access cannot be achieved and pedestrian access is only practicable from the side or rear, the access as provided shall be exclusive to the residential occupiers of the building.

Key Principle - TR13

Pedestrian Environment Review System

A Pedestrian Environment Review System (PERS) assessment should normally be included as part of the Transport Assessment. If deemed necessary a pedestrian comfort level assessment should be included as part of any PERS assessment.

The PERS should include an assessment of disabled people and people with mobility impairments.

Developers are expected to provide funding in order to resolve any unacceptable issues that are identified as part of a PERS assessment. The funding to resolve these issues will be secured by condition or Section 106 agreement.

13.39 A PERS assessment will assess the quality of any walking environment. The analysis enables objective comparisons of the environment along different routes, so that any impacts, issues or substandard areas can be identified.

Key Principle - TR15

Public transport

The council will require, as a condition of granting planning permission, that where appropriate development proposals make full provision for appropriate access by coaches and taxis which should not impinge on existing bus servicing arrangements or road safety in the vicinity.

13.40 The council will normally permit coaches and taxis to take advantage of bus priority measures in the borough unless there are circumstances in which bus priority would be adversely disadvantaged. In addition the council will seek developments to accommodate the necessary coach and taxi parking off-street, where appropriate.

13.41 The council will press for improved accessibility of taxis and coaches for wheelchair users.

13.42 Development in connection with the use of the River Thames for the operation of public transport services will be welcomed, particularly between central London, Chelsea Harbour, South Fulham and Hammersmith.

Key Principle - TR16

Access for all

The needs of disabled people in getting to and from a building or development as pedestrians, public transport users, motorists, and car passengers must be taken into account in the design of individual developments.

13.43 A key planning objective is to ensure that housing, jobs, shopping and other services are accessible by a range of transport modes and that new developments connect satisfactorily with surrounding areas to facilitate safe and inclusive access for all users. Further advice on accessible and adaptable dwelling can be found in Building Control guidance M4 (2) accessible and adaptable dwellings and M4(3) for wheelchair user dwellings.

Bus or Taxi

13.44 Bus stops and taxi ranks provided as part of the development should be accessible for disabled people and located as close to main building entrances as possible, in accordance with the Equalities Act 2010. We will lobby and work with TfL and other local stakeholders to improve access to Tube Stations within the borough.

Train or Tube

13.45 Developments should consider accessible routes from bus stops and stations. Any that incorporate transport interchanges and stations should reflect inclusive transport design so that facilities are both accessible and usable by disabled people.

13 Transport

River Transport

13.46 Where access is provided by boat, the development should be located a short distance from the point of exit to facilitate access for disabled people. Main piers and ramps for public use should be wheelchair accessible.

Access by Car

13.47 Despite improvements to public transport, some disabled people still require the use of private cars as a means of access, either on-site, or on-street nearby. Where relevant to a proposed development, the needs of other groups such as older people, parents with children, and of doctors and care workers should be considered.

13.48 In off-street car parks, space should be provided for Blue Badge Holders as close as possible to the facilities, preferably within 50 metres, with level or ramped access, and under cover if necessary. Where it is not possible to provide designated parking spaces close to the development, a setting down point for disabled people should be provided on firm and level ground, close to the principal entrance to the building.

Footways and Footpaths

13.49 Footways (or pavements) are the part of a highway adjacent to the carriageway for pedestrian use. A footpath has no adjacent carriageway.

13.50 Both footways and footpaths should facilitate ease of access to and from the development. These should be well lit, and clearly signposted with level surfacing to provide easy and safe access for disabled people.

Kerbs and Crossings

13.51 Level or flush access is essential for the majority of wheelchair users and must be provided at all zebra and controlled crossing and at other places used by pedestrians. Footways at dropped kerb crossings should be of sufficient width to allow easy passage for disabled people passing by who are not crossing the road. The council has produced guidance on providing tactile paving, which can be found here: [\(insert Link\)](#).

Signage and Information

13.52 Signs and information leading people to the development must be in forms that can be easily used by disabled people. Signs must be clear and placed at appropriate heights to take into account the needs of visually impaired people and wheelchair users.

Key Principle - TR17

Moving around a development

Developers should ensure that disabled people do not need to walk long distances to access buildings and facilities and should provide plenty of appropriately placed and designed seating. The needs of particular disabled groups, for example those with learning difficulties need to be taken into account when considering arrangements for moving around a development. When considering potential barriers to inclusive access the council will expect developers to consider:

- getting to and from a development
- moving around a development
- signage and information
- surfacing materials

Street Furniture

13.53 When proposals are of a size and nature that require street furniture to be incorporated, it must be positioned to take into account the needs of disabled people. For example, signs, poles, bollards, seats and litter bins should be provided at appropriate heights and positioned to leave appropriate footway widths to facilities access for people in wheelchairs and visually impaired people.

Landscaped areas and routes around buildings

13.54 The design of landscaping should be designed to allow good visibility for those in wheelchairs so as not to impair their personal safety.

13.55 Where route are provided around buildings these should not contain steps, stairs, turnstiles, revolving doors, escalators or other features which form a barrier to disabled people unless suitable alternatives are provided.

Shopfronts, Signage and Information

13.56 Shopfront, fascias, signs and information for getting to and from a building or development, and within a building or development, must be in forms that can be easily used by disabled people. Signs must be clear and placed at appropriate heights to take into account the needs of visually impaired people and those who use wheelchairs.

13.57 Development will not be permitted unless, in terms of its design and layout it would facilitate ease of access by disabled people and other with impaired mobility, to and from public transport facilities and car parking areas that directly serve the development, to town centres and local neighbourhoods, and to schools, local shops and services.

13.58 Proposals to enable ease of access to public transport services and facilities will be welcomed and encouraged.

13.59 The council recognises its responsibility in implementing good street and interchange arrangements to public transport services from the street and may seek support and funding to ensure that bus stops, particularly in the vicinity of the new development, provide access for accessible bus services to meet the needs of disabled people and to ensure the kerbsides can be kept clear for buses

13 Transport

to service such stops. The council may propose physical alterations to the highway or footway, such as the introduction of bus boarders, which will improve accessibility to wheel chair users and step free access to allow accessibility to and from train stations.

13.60 High quality and inclusive design should apply to all development including individual buildings, public and private spaces and wider area development scheme. This creates an environment that functions well and is accessible to everyone. Instead of arranging separate facilities for disabled people, inclusive design will remove barriers, and will provide facilities and buildings that are accessible for all people regardless of disability, age or gender.

13.61 The council expects all developers to take access issues onto consideration when submitting planning applications and to provide developments that are inclusive in design. Where surfaces are to be used by vehicles as well as pedestrians, comfort space zones or routes should be clearly delineated as the part that is mainly for pedestrians, as recommended in Department of Transport Local Transport Note 1/11 and other best practice guidance.

Key Principle - TR18

Works on the public highway

The developer will be required to pay for any works that the council or TfL in their capacity as highway authority has the power to carry out and that are necessary as a result of new development.

13.62 The council will undertake the works on the highway in order to ensure that the works are undertaken to the council's adoptable standards and in order to ensure the disruption to the road network is minimal.

13.63 Payment will be secured either by means of an agreement under section 278 of the Highways Act 1980 or a Planning Obligation under section 106 of the Town and Country Planning Act 1990. Consideration may also be given to the need to adopt new works as public highway. Permission for work on the TLRN must be sought from TfL. Works on the strategic road network are also subject to approval by TfL.

Key Principle - TR19

Permanent stopping up or diversion

The permanent stopping up or diversion of the highway as part of a development, requires the permission of the Highway Authority in the form a 'Stopping Up Order' under Section 247 of the Town and Country Planning Act (as amended) to be obtained, in addition to planning permission. This may be subject to a local enquiry. If so, the Developer would be expected to meet any costs relating to this enquiry.

13.64 The council requires stopping up and diversions to be provided in accordance with national planning law.

Key Principle - TR20

Temporary closures

Where a temporary closure is needed, for example while construction works take place, a traffic order is required.

13.65 The council will normally seek a traffic order while a temporary closure is in place in order to control vehicle and pedestrian activity along a length of public highway. This is required to ensure the safe of the highway and minimise disruption.

Key Principle - TR21

Vertical Clearances

The minimum vertical clearance required for a new construction over, or within 1m of the carriageway is 5.3m. Over the rest of the footway (i.e. the part of the footway more than 1m from the carriageway), the minimum clearance is 2.3m for awnings and 2.6m for solid structures. Buildings and structures that overhang the public highway require a licence.

13.66 The council will require developments to adhere to the minimum vertical clearances to ensure solid structures and awnings are an appropriate distance from the footway for pedestrian safety.

Key Principle - TR22

Reducing the impact of new development on the highway

The council requires that all new developments that have the potential to have a detrimental impact during the construction phase will require a Construction Logistics Plan (CLP).

We may also explore contributions from developers towards funding the monitoring and where necessary the enforcement of issues related to the CLP.

13.67 Construction of developments of all scales can have a serious impact on parking availability, traffic flow, road safety, residential amenity and pedestrian convenience if not properly managed. For this reason the council requires that all new developments that have the potential to have a detrimental impact to submit a Construction Logistics Plan. This plan should be based upon the Mayor's Construction Logistics Plan (2017) (Add Link) and include:

- Routing of vehicles;
- Access arrangements to the site
- The estimated number of vehicles per day/week
- Details of the vehicle holding area
- Details of the vehicle call up procedure; and
- Details of any diversion, disruption or other abnormal use of the public highway.

13 Transport

13.68 The council will apply a condition to the planning consent to ensure that Construction Logistics Plan are submitted and approved before planning permissions are implemented. The Construction Logistics Plan will be secured by condition or Section 106 agreement depending on the scale of the development.

13.69 In order to reduce the impact of construction on the local road network the council will seek to ensure that where sites are located adjacent to the borough's waterways or railways full use is made of water/rail transport for the transport of construction and waste materials.

13.70 The council supports and requires that drivers of the construction vehicles to undertake cycle awareness training to ensure the safety of all road users.

13.71 The council support the London Boroughs' Transport Scheme (LBTS) night-time and weekend ban on lorries above 16.5 tonnes (GVW) and will support all appropriate measures to ensure the effective operation and enforcement of the LBTS ban.

13.72 The council will also promote local area bans on heavy lorries, in appropriate circumstances and operate an overnight ban on-street lorry (and coach) parking within the borough and its active enforcement.

13.73 The council requires operators to obtain a goods vehicles operator's licence for London. Developers wishing to use a vehicle with a gross plated weight of more than 3.5 tonnes, if there is no gross plated weight or an unladen weight of more than 1525kg requires a licence.

Key Principle - TR23

Streetscape

Developers should apply the relevant elements of the Streetsmart guide and apply the same principles to the design of forecourts, accesses, service roads and other areas that are next to the highway on such matters as:

- **Ground surfaces, materials, workmanship, treatment of paving, carriageways and kerbs, restoration of historic paving;**
- **Street furniture, in particular to protect listed elements, reduce clutter and minimise the cost and time of maintenance;**
- **Specific guidance regarding materials specific to conservation areas; town centres, The Riverside Walk and the character of residential neighbourhoods across the borough; and**
- **Maintenance including stringent enforcement of existing controls.**

13.74 The council has produced a manual entitled 'Streetsmart' which forms a reference manual of good practice for all concerned with the design and implementation of traffic schemes and the maintenance of the highway. The document consists of two volumes, the first volume sets out the approach to streetscape design and the second sets out details regarding construction.

13.75 StreetSmart is currently being reviewed and revised and a new version will be produced. As part of this all stakeholders including the H&F Disability Forum will be consulted.

13.76 Where changes are proposed to Transport for London Roads (TLRN or London's 'red routes') reference should be made to TfL's Streetscape Guidance February 2016.

13.77 Any works that are proposed to the highway should be undertaken by the council at the applicant's expense. Funding should be secured by section 106 agreement or section 278 agreement.

Key Principle - TR24

Forecourt parking and vehicle crossovers

The council will consider favourably planning applications for parking on forecourts and front gardens together with associated footways crossovers, where:

- the road to which access is required has a night time on-street parking stress is of 80% or less;
- It will not endanger the safety of pedestrians or cyclists;
- It will not be out of character with the streetscape;
- It will not result in narrow pavements and would create an uneven surface for pedestrians and cyclists to negotiate;
- the area on which the vehicle is to be parked is of a minimum size of 4.8m long (likely to be over this minimum size to prevent overhang of the vehicle onto the adjacent public highway) and 2.3m wide. See KP4;
- vehicular access to this area will not involve any manoeuvres causing danger to the public;
- garden gates do not open onto the public footway;
- proposed crossovers and forecourts are located a minimum of 10 metres from road junctions, road bends, pedestrian crossings or bus stops/bus stop cage markings.

13.78 The creation of forecourt parking can result in the loss of on-street parking. This increases the potential for on-street parking stress which can result in double parking and obstructions of the highway. This has a serious consequential effect on the health and safety of local residents, both directly and indirectly through the obstruction of emergency /social service vehicles. The maintenance of a safe and attractive environment for pedestrian and cyclists is also of primary importance and vehicular access to properties via footway crossover conflicts with these aims. Forecourt parking and vehicle crossovers will be resisted on the TRLN.

13.79 For drainage and safety reasons, crossovers are usually built with a crossfall towards the road which has a gradient with limits of 1 in 30 and 1 in 40. This is done to minimise any difference in level between the private land and crossover at the boundary it is the responsibility of the occupier to any additional alterations to the level of their private land to match the crossover area.

13.80 No surface water shall be permitted to drain onto the public highway and appropriate surface water drainage needs to be provided (see Section 9 - Sustainable Drainage (SuDs)).

13 Transport

Key Principle - TR25

Kerbs and pedestrian crossings

All kerbs and pedestrian crossings should be designed to allow for accessibility and inclusivity

13.81 At all designated crossing points on roads or other vehicle carriageways, where practicable and refer to TfL Streetscape guidance (add Link):

- the kerb must be ramped flush to the carriageway and where possible, the ramp should be located away from where there is a steep road camber and have a kerb ramp that is at least 1.2M long
- the crossing should be identifiable to visually impaired pedestrians by the use of tactile paving where appropriate;
- dropped kerbs must be located directly opposite one another and preferably at a right angle to the carriageway;
- the detailed design and materials must be agreed. The requirements of each site will be determined according to need, streetscape and road safety considerations.

Key Principle - TR26

Tables and chairs

The placing of tables and chairs outside premises on the public highway will normally require planning permission because it will involve a change in the use of the land on which they are placed. The use of a private forecourt for purposes which are ancillary to the main use of the building itself will not normally require planning permission.

It is not considered generally practical to provide tables and chairs within a depth of less than 1.5 metres from the building line allowing for space to reach the table. Applications for tables and chairs in particular types of location will be considered as follows:

- **A minimum width of 3.5 m clear and unobstructed footway will usually be required in Town Centres.**
- **A minimum width of 1.8 m clear and unobstructed footway will usually be required outside Town Centres.**
- **In both above locations where there is a high level of footfall, even over short bursts, a greater width of clear and unobstructed footway than specified above will be required.**

13.82 Under the Highway Act 1980 it is an offence for a person who is not the holder of a consent and temporary licence to place of tables and chairs on the highway.

13.83 When considering the grant of a licence for tables and chairs the council will also take into account the impact on residential amenity, and the importance of maintaining a free and unobstructed passage along the highway, including any risk to public safety. In order to ensure that residential and other amenity is protected, and to minimise noise and disturbance, conditions may be imposed on the grant of a temporary consent or licence. These can include amongst other things:

- the hours during which the areas may be used;

- the times when tables and chairs and other items must be removed to the agreed place of storage;
- cleaning the street area to an acceptable standard before and after the placement of the tables and chairs.

13.84 Key Principle TR26 ensures the safe and convenient movement of pedestrians including those with visual mobility disabilities, including wheelchair users.

13.85 In streets with very high traffic flows a greater distance may also be required to avoid pedestrians having to be too close to the traffic and also to protect all users of the footway from the effects of traffic. Some footways in major shopping streets need to be kept unobstructed and such streets may be unsuitable for tables and chairs.

13.86 In or adjoining public space areas given planning permission for pavement or café use and to have, loose or moveable furniture should be confined by a rail, planter or other form of visual guarding. The lower part of the guarding is rigid enough to be detectable with a long cane somewhere within a zone stretching between 150mm and 300mm above ground.

13.87 Following the expiry of consent, an application for renewal of consent must be made.

13.88 Failure to comply with all relevant legislation will result in the council revoking licences.

13.89 TfL Streetscape guidance should also be referred to when applying for tables and chairs (add link).

Key Principle - TR27

Mechanical parking solutions

Where mechanical parking solutions including car stackers, turntables and lifts are proposed as a means of maximising the space available for off-street car parking, the council will require certain criteria to be met as appropriate.

- accesses should be positioned at least 5m from the back edge of the footway;
- where accessed directly from the highway, then each parking space must be independently accessible;
- where accessed within an off-street car park, and the spaces are not independently accessible, there must be adequate circulation space to allow vehicles to wait without blocking the free flow of traffic either within the car park or on the highway;
- the council may impose a condition relating to the maintenance of the mechanical parking on the grant of any planning permission; and
- where there will be impact on the local highway network a Road Safety Audit will be required.

13.90 Mechanical parking solutions including car stackers, turntables and lifts are frequently suggested as a means of maximising the space available for off-street car parking.

13.91 The council will require the developer to set out the maintenance requirements of the parking solution and costs of maintaining a mechanical parking solution should be set out and secured by condition or a section 106 agreement.

13 Transport

Key Principle - TR28

Servicing

The council will seek off-street servicing for all new development and will resist its loss in existing developments.

13.92 Adequate space for loading, unloading and waiting of goods vehicles must be provided, normally within the development site. The provision should be one lorry space for every 500 sqm of gross floorspace, unless the developer can satisfy the council that the design of development is such that lesser level of provision will be adequate to meet the full potential demand for servicing which may reasonably be anticipated. Consideration will also need to be given to the need for garaging commercial vehicles on the premises.

13.93 The council will also require that areas set aside for servicing arrangements are designed/arranged in such a manner as to discourage their use for car parking and may require the incorporation of specific measures to prevent the parking of cars in areas not designated for that purpose.

13.94 In accordance with Transport for London's Guidance 'Delivery and Service Plans' (add link) delivery and servicing arrangements for a development must be set out within the Travel Plan. Monitoring of servicing and deliveries should also be included as part of the Travel Plan.

Key Principle - TR29

Advertising

Planning applications for advertising should adhere to the policies set out in Local Plan Policy DC9 - Advertisements and the details in Section 4 (of this document) - Design and Conservation. In respect of visual impact the council will also consider issues of public safety.

13.95 The council will normally refuse consent for any advertisements which would be displayed where public safety would be compromised.

13.96 Free standing hoardings will be unacceptable on major traffic routes or at important road junctions where there display is liable to be prejudicial to public safety. Signs should not flash or move and that the luminance does not exceed levels set out in the 'Technical Reports of the Institute of Lighting Professionals.'

13.97 The council is considering an initiative for limiting advertising boards (A frame boards) on the public highway. This is to ensure they don't impede on the safe and convenient passageway of pedestrians.

Key Principle - TR30

New Street Furniture including Broadband cabinets and telephone boxes

The proposed locations for new street furniture will be considered as follows:

- A minimum width of 3.5 m clear and unobstructed footway will usually be required in Town Centres.
- A minimum width of 1.8 m clear and unobstructed footway will usually be required outside Town Centres.
- In both above locations where there is a high level of footfall, even over short bursts, a greater width of clear and unobstructed footway than specified may be required.
- In special circumstances, where broadband cabinets are required to meet Local Plan Strategic Objective 18 to facilitate access to high speed internet across the borough, a minimum width of 1.2 clear and unobstructed footway will be required, except within Town Centres and areas with a high level of footfall where a greater width than 1.2 m will be required.

13.98 Street furniture should be provided in accordance with the H&F Streetsmart Guidance and should also be appropriately protected against graffiti and fly posting and be regularly maintained. If a manhole is required, it should be covered with antiskid surfacing if the on carriageway and with a non slip surface on the footway.

13.99 This key principle ensures the safe and convenient movement of pedestrians including those with visual or mobility disabilities (including wheelchair users).

13.100 A scaled drawing showing the proposed location for the Street furniture as well as the dimensions should be provided.

13.101 TfL Streetscape guidance should be referred to when submitting applications for street furniture (add link)

13 Transport

14 Waste Management

14.1 Waste or refuse, is the term used to describe unwanted or discarded materials. Recyclables are waste materials that can be re-processed into marketable products, provided they can be kept separate from other waste. It is essential that satisfactory facilities for the storage of refuse and recyclables, together with adequate means of access for collection, are provided in all developments in order to enable efficient recycling and refuse collection. These needs should be taken into account at the outset of the design of the development and made an integral part of it.

14.2 As a Waste Collection Authority (WCA), Hammersmith & Fulham council collects municipal waste, which includes household refuse and recyclables, street sweepings, litter, flytipped materials, commercial waste, industrial waste and waste from municipal parks and gardens. The level of municipal waste has decreased from over 88,000 tonnes in 2006/7 to an estimated 74, 500 tonnes in 2016/17. Much of this waste has a hidden value and can either be reused, composted or recycled.

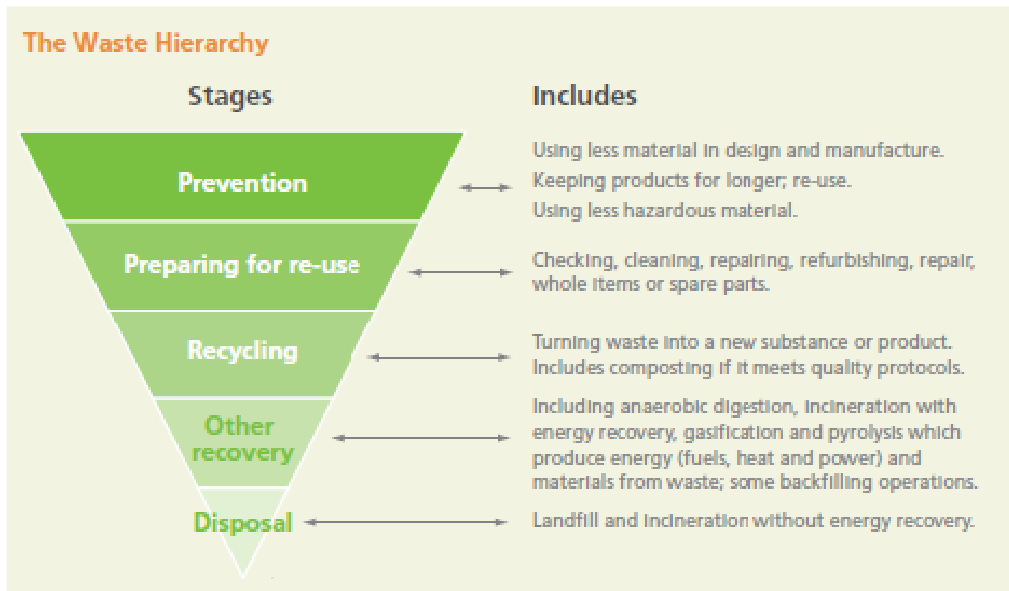
14.3 Western Riverside Waste Authority (WRWA) is the statutory Waste Disposal Authority (WDA) for LBHF, as well as the Royal Borough of Kensington and Chelsea, Lambeth and Wandsworth. Most of the waste collected by LBHF is managed through a riverside site (Smuggler's Way), close to Wandsworth Bridge in the London Borough of Wandsworth. Currently most of the non-recyclable municipal waste is transported by river to an Energy from Waste (EfW) facility in Bexley. Recyclable materials are dealt with by a new Materials Recycling Facility (MRF) with a capacity for 84,000 tonnes located at Smuggler's Way.

14.4 WRWA has "Power of Direction" over the borough's Municipal Waste (under the Environmental Protection Act (EPA) 1990) and the council is obliged to deliver all of its Municipal Waste to WRWA designated waste management sites, currently operated by Cory Environmental Limited.

14.5 In line with the waste hierarchy (Figure 1), Hammersmith & Fulham council aims to reduce the amount of waste it collects by encouraging waste minimisation, and increase the level of recycling of municipal waste in the borough. The council is working hard to increase recycling rates and sets its own recycling target, which at the time of writing aims at a 2% increase year on year. As a result, suitable arrangements in developments specifically to encourage recycling by making it easier both for occupants and for collection are required, especially in larger and mixed use developments.

Figure 1 The Waste Hierarchy (Source Defra Waste Review 2011)

14 Waste Management



14.6 We are not acting in isolation by pursuing these improvements – the Mayor of London is setting a similar agenda through the policies in the London Plan, the draft Environment Strategy and the Mayor’s Municipal Waste Management and Business Waste Management Strategies which promote a shift from the linear economy to a circular economy through the reuse of resources and reductions in levels of waste production. All London Boroughs are expected to follow this lead with the aim of making developments more sustainable and reducing the dependence on landfill and other disposal methods.

14.7 The council expects developers to take account of the advice in this guidance document in preparing planning applications, particularly for major developments, bearing in mind that under Section 36 of the EPA 1990, "where a waste collection authority has a duty by virtue of section 45(1) (a) to arrange for the collection of household waste from any premises, the authority may, by notice served on him, require the occupier to place waste for collection in receptacles of a kind and number specified".

Policy Context - Waste Management

National

The Waste Framework Directive (2008/98/EC) and The Waste (England and Wales) Regulations 2011

The Directive sets the UK a statutory target to recycle 50% of waste from households by 2020. It also requires that there are separate collections for paper, metal, plastic and glass by 2015. "Separate collections" can include co-mingled waste collection followed by separation at recycling facilities.

The Regulations transpose the Directive into law. The Regulations require that:

- There is a national waste prevention plan in place by December 2013
- Producers and transporters of waste apply the waste hierarchy to waste in their care

Waste Management Plan for England (2013)

At the National level, the Waste Management Plan for England provides the high level expression of how the government intends to work towards a more sustainable and efficient approach to resource use and management. This plan provides an analysis of current waste management situation in England and evaluates how it will improve the objectives and provisions of the revised EU Waste Framework Directive (2008/98/EC).

National Planning Policy for Waste (2014)

More detailed waste planning policies for England are set out in the National Planning Policy for Waste which replaced former PPS 10: Sustainable Waste Management. It provides a planning framework to enable local authorities to put forward, through local waste management plans, strategies that identify sites and areas suitable for new or enhanced facilities to meet the waste management needs of their areas.

Paragraph 8 of the National Planning Policy for Waste is of relevance which seeks to ensure that new non-waste development provides sufficient waste management and good design is promoted to secure integration of waste management facilities within the rest of the development. This includes providing adequate storage facilities at residential properties e.g. that there is sufficient and discrete bin provision to facilitate high quality, comprehensive and frequent household waste services.

These should also be read alongside the NPPF.

London Plan

The Mayor's spatial development plan for London, The London Plan, has strategic planning policies that cover all of London's waste. Both of the Mayor's waste strategies (see below) will be supported by, and should be read in the context of the London Plan.

Policies 5.16 and 5.17 of the London Plan are particularly relevant to waste and recycling, as well as policy 5.3 on sustainable design and construction.

The Mayor of London's Housing SPG and Sustainable Design & Construction SPG provides further guidance for applicants on waste management. Alongside this, the Mayor has also published a draft Environment Strategy for consultation which is due to be adopted in early 2018. This contains a number of proposals for waste including the aim of collecting food waste.

14 Waste Management

Local Plan

Policy CC7: On Site Waste Management of the Local Plan sets out the requirements for all new developments to provide suitable facilities for the management of waste generated by a development, including provision of convenient storage facilities with adequate capacity to enable occupiers to separate, store and recycle their waste both within their own residence and via accessible communal storage facilities which will enable efficient collection. In accordance with the Waste Hierarchy, a key aim of the policy is for developments to firstly minimise waste, as well as seeking to encourage sustainable waste behaviour through increasing and promoting recycling.

Other relevant Local Plan Policies include, Policy CC6 on strategic waste management, Policy CC2 on ensuring sustainable design and construction which includes making the most effective use of resources and Policy HO11 on detailed residential standards.

Key Principles

Storage of Segregated Waste

14.8 This guidance is applicable to all applications, including applications for new developments, conversions or changes of use, which will materially affect the generation of waste by the development or at the site. Site specific issues and constraints will be taken into consideration where applicable; however in all cases some provision for both waste and recycling must be made.

14.9 This section does not cover construction and demolition waste management. Please see Chapter 12 on Sustainable Design and Construction within this SPD for further guidance.

Key Principle - WM1

Residential Waste Storage for Kerbside Collections

Adequate waste and recycling storage should be provided in all residential developments in the borough in order to encourage and increase the opportunities for the recycling and composting of waste.

14.10 For domestic properties, where refuse is collected in ordinary dustbins or black sacks, the council provides a kerbside weekly or in some cases, a twice-weekly collection service for mixed (co-mingled) recycling.

14.11 Materials collected include:

- Glass bottles and jars
- Paper
- Cardboard (including corrugated)
- Metal cans, tins and empty aerosols
- Household plastic packaging – including bottles, butter and margarine tubs, yogurt pots and food trays (but not including plastic bags or plastic films)
- Beverage/food cartons (tetra pak or similar)

Waste Management 14

14.12 The council provides special clear, disposable recycling bags for this recycling service free of charge. Rolls of these bags are delivered to every household receiving the service at regular intervals (at the time of writing, four times a year). All of the above materials can be placed into the recycling sacks, with no need to sort. Sorting is carried out at the WRWA Materials Recycling Facility (MRF) in Wandsworth.

14.13 The bags are collected at the same time as refuse bags, by a split-back vehicle with a compartment for refuse and a compartment for recycling.

14.14 Residential developments serviced by a kerbside refuse and recycling collection should be built with adequate storage for both refuse, recycling and food waste both inside and outside the dwelling. While the Council does not currently collect food waste separately, properties need to be able to facilitate the separate storage of food waste in case a separate food collection is introduced in line with the Mayor's ambitions.

Key Principle - WM2

Internal Storage for Kerbside Collections

Internal storage for waste, recycling and food waste must be located in an accessible and commonly used area inside each dwelling.

14.15 This should be easily accessible from external storage areas, near to areas of high waste production and be hard wearing and washable. Kitchens and utility rooms are generally the most appropriate locations. In a kitchen, the internal storage for refuse and recycling should be away from circulation areas e.g. below a worktop, to prevent restricting access for people with mobility difficulties.

14.16 The capacity for recycling must be at least equal to storage for refuse and storage space should allow for the ratio of recycling to waste to be adaptable to meet future demand. Adequate space to accommodate at least one smart sack must be provided in the same location as the receptacle for the non-recyclable waste. The smart sack specification is as follows:

- Capacity: 80 litres
- Width when closed: 370mm
- Width when open: 680mm
- Height: 940mm

14.17 Adequate space must be available to accommodate at least 7 litre food waste caddy, near to the area of high food waste production and raised from the floor, generally located on the kitchen worktop.

Key Principle - WM3

Compost Bins

Where there is access to a garden, space should be provided for a compost bin of at least 1 metre diameter by 1.2 metre height.

14 Waste Management

14.18 Internal space should also be provided for a container or bag to store this compostable waste for a couple of days so that the resident does not have to make daily trips to the compost bin. Transportable kitchen caddies with a sealed lid are popular for this purpose and measure approximately 250mm width by 205mm depth by 205mm height (5 litre capacity). At the time of writing the council offers reduced-price home compost bins and home composting accessories for residents to purchase.

Key Principle - WM4

External Storage for Kerbside Collections

At residential premises served by kerbside collections, space must be made available outside for the storage of refuse, recycling and food waste.

14.19 These spaces must be at ground floor level, at the front of the property and within 10 metres of vehicle access and ideally within 3 metres of the entrance to the premises from the public highway or access road. Storage locations should be on a hard, level surface that is accessible to disabled people.

14.20 The refuse service in operation by the council is the collection of standard dustbins or bags. These dustbins, typically around 80 litres, are not provided by the council and must be supplied by the resident or developer. Residents must also supply their own black refuse bags. Wheelie bins are not acceptable containers because they are not compatible with collection vehicles and are too tall for bags to be safely removed from them. For each individual household an external cupboard or designated storage space is needed, capable of holding at least two ordinary dustbins, whose specification conforms to BS 792 or BS 4998, or alternatively space or holders for at least two refuse sacks, each of about 100 litre capacity. Additional space of at least 160 Litres is also needed for recycling sacks, and at least space for a 23 litre food waste caddy. See the table below for the approximate capacity needed depending on household size.

Recommended capacities for properties served by kerbside collections

Household number	Refuse	Recycling	Food Waste
1 household (4-6 people)	3-5 dustbins (minimum 3 dustbins or 300 litres)	2-3 recycling sacks (minimum 240 litres)	1 23 Litre food waste caddy
1 household (1-3 people)	2-3 dustbins (minimum 2 dustbins or 200 litres)	2 recycling sacks (minimum 160 litres)	1 23 Litre food waste caddy

14.21 It is not acceptable for any waste to be stored on the public highway (with the exception of black sacks and recycling sacks placed out on collection day, or after 9pm on the preceding day). Waste stored on the public highway at any other time may result in enforcement action being taken against the resident.

14.22 Appendix 5 provides full details on the collection requirements for the external storage of domestic waste.

Key Principle - WM5

Residential Developments not Served by Kerbside Collections

Properties that are not served by a kerbside collection must be provided with communal refuse and recycling bins.

14.23 Properties not suited to a kerbside service, e.g. flats, mansion blocks and estates, must instead be provided with wheeled refuse bins for communal use, to be located in a bin store or stores and/or at the end of chutes accessible along a step-free route from the dwellings they serve. In most instances these properties must also be served by communal recycling bins (special euro bins with orange lids which take the same range of materials as the disposable, clear recycling bags, described earlier), located in a bin store or at the end of chutes. The refuse and recycling bins are emptied weekly or more frequently if necessary. Although a food waste collection service is not currently in operation within the borough, space must be made available to shared external food waste bins, as this service may be offered in the future. The exception to providing the communal recycling bin services is where there are 10 or fewer flats in a property, where it may be possible for the council to offer a kerbside collection, provided there is adequate space on the highway to put the clear bags out for collection. Where resident service bodies have duties under the Equality Act 2010 to make service adjustments for individual disabled residents, this may in some instances include an assistance arrangement to porter refuse to communal bin and recycling stores. For further information about Equality Act 2010 and Building Regulation step-free access requirements, see section 4 of this SPD on requirements for accessible and inclusive design.

Key Principle - WM6

Internal storage in Flats

The overriding policy for facilities in flats is that recycling should be at least as convenient for residents as it is to dispose of refuse.

14.24 Internal storage for waste, recycling and food waste must be located in an accessible and commonly used area inside each dwelling, near to areas of high waste production and hard wearing and washable. Kitchens and utility rooms are generally the most appropriate locations.

14.25 Internal storage must provided for non-recyclable waste, recyclables and food waste. If residents will be using chutes or external bins, the space needed internally for storage can be slightly less than for kerbside properties as the waste will not have to be stored all week at the property. It is recommended that between 100 and 150 litre capacity is provided internally, split approximately 50:50 between refuse and recycling. In addition, space for a 7 litre food waste caddy should be provided internally. The council provides reusable bags (fig. 2) for residents to use to store and transport recycling to the chute or bins.

14 Waste Management

Figure 2 Reusable bag



14.26 The specification of these bags is as follows:

- Width: 310mm
- Height: 370mm
- Depth: 250mm

14.27 Refuse chutes frequently get blocked and act as a fire risk. A better option is to offer rubbish and recycling storage areas.

- If refuse chutes are to be built, developers should not provide a refuse chute alone. One of the following two solutions should be designed:-
 1. Two separate, parallel chutes, one for refuse and one for recycling. The appearance of the two chute hatches and accompanying signage should clearly indicate the differences between the chutes in order to maximise recycling and minimise contamination.
 2. A bi-separator (mechanical) chute. This is one chute with a separator at the base, which residents control via a button at the chute hatch, depending on whether they are depositing refuse or recycling. The separator determines whether the waste is diverted at the base into a refuse or recycling bin.
- Chute dimensions – these must be carefully considered to help prevent blockages from over-sized items. Chutes should be a minimum of 450mm in diameter, have a smooth non-absorbent surface, close fitting access doors and be ventilated at top and bottom.
- Alternative arrangements for larger items should be made to minimise risk of blockages.
- At the base, chutes should be equipped with shutters for collection crews to utilise when emptying the bins, to avoid risk of injury from falling waste.
- In general, chute design should comply with BS1703 (specification for refuse chutes and hoppers).

14.28 For developments where a refuse portage service is proposed, the service should incorporate the portage of recyclables to the recycling bins provided.

14.29 Although, it is the Mayor's ambition for boroughs to collect food waste (Mayor's draft Environment Strategy, 2017) at present the council does not provide a separate food waste collection. Food waste macerators in sinks provide an alternative method of waste disposal. Any use of this system would have to be agreed with the local water company (Thames Water) and the council. For premises with limited external storage space, wormeries could be an alternative to compost bins. Residents can place cooked and uncooked food waste into the wormery to produce a small amount of compost and liquid plant feed. The Can-O-Worms 70 litre and 45 litre are currently available from

the council at a subsidised price. Both measure 500mm in diameter, the 70 litre wormery measures 730mm in height and the 630mm wormery measures 630mm in height. An example is seen in figure 3 below.

Figure 3 Wormery



Key Principle - WM7

External Storage in flats

All new residential developments employing communal containers should provide a purpose built area to include space for recycling bins.

14.30 Careful consideration should be given to the design, siting and location of units so as not to adversely affect the streetscene, particularly in conservation areas. The bin store must be capable of housing the maximum number of bins required, based on an assessment of projected arisings (See below).

14.31 The council recommends calculating the required waste capacity based on the following formula:

$$A \times ((B \times C) + 30)$$

Where:

A = number of dwellings

B = volume arising per bedroom (100l)

C = average number of bedrooms

So for example in a development of 10 x 1 bed flats and 10 x 2 bed flats, the following applies:

$$A = 20$$

$$B = 100l$$

$$C = 1.5$$

$$20 \times ((100 \times 1.5) + 30) = 3600 \text{ litres}$$

14 Waste Management

14.32 The recommended split of refuse and recycling is a ratio of 50% refuse, 50% recycling. So in this example 1980 litres is required for refuse and 1980 litres for recycling. This would be rounded up, to give a final recommendation of 2 x 1100 litre refuse bins and 2 x 1280 litre recycling bins.

14.33 Eurobin and chamberlain dimensions are detailed in Appendix 5. For all refuse and recycling containers provided by the council, a delivery charge is levied, as well as a weekly hire charge per container. If bins are to be located in a shed or cupboard then adequate ventilation must be provided together with electric lighting controlled by a local switch. All bin areas need to be washed down at intervals and a local hose point should be provided with adequate drainage.

14.34 Internal waste storage rooms should be constructed within a fire compartment structure, which is designed to contain a fire. Where risks are greater, for example in multi-storey buildings, fire extinguishers should be deployed, and automatic fire sprinkler or water mist system considered.

14.35 If bins are to be located in the open then these must have a fence or wall on at least three sides. However they must be safe for users by being well lit and visible from public vantage points. For flats that cannot accommodate underground storage, bin frames and locking posts will be requested.

14.36 There should be space available for the possible introduction of 240 litre food waste bins, allowing 5 litres per household. So for 50 households, this would equal 250 litres and be rounded up to enough space for 2x 240 litre bins.

14.37 Waste storage chambers should in general comply with BS5906:2005.

Siting of Storage Areas

14.38 Key Principle WM6 on Internal Storage -The siting of storage areas for containers and chutes should not cause householders to carry refuse further than 25 metres (excluding vertical distance). Storage areas should be on a hard level surface, approached along a path or route that is accessible to disable people.

14.39 It is not acceptable for any waste to be stored on the public highway (with the exception of black sacks and recycling sacks placed out on collection day, or after 9pm on the preceding day, from street properties), so specific, suitable and convenient storage space must be provided within all developments. Wherever practical it should be possible to collect waste direct from the bulk bin storage area so that there is no requirement for it to be moved to a collection point, particularly to a point on the public highway. Appendix 5 of this SPD provides full details on the collection requirements for the external storage of domestic waste.

14.40 In order to encourage and promote awareness of recycling in new developments it is good practice to provide signage and lighting in waste storage chambers discouraging the deposit of recyclables in the refuse containers, and encouraging and directing use of the recycling banks provided. The council's recycling team will be able to provide guidance on the design to be used for the signage, as well as different options for recycling bin housing.

14.41 It is also good practice for any information packs provided to new residents to include full information on available recycling facilities along with encouragement to use them. We also recommend that permanent information on recycling is displayed in a prominent position such as on information boards in entrance halls. The council will be able to assist in specifying the type of information to be provided in the packs.

14.42 If it is proposed to locate bulk waste storage containers such as Eurobins in a basement area inaccessible to a standard waste collection vehicle, a suitable ground floor collection area must be indicated on drawings submitted for approval. In addition, a written statement must be attached describing the proposed method for transporting the containers to ground level, including parking arrangements for a tractor unit and trailer, if these are required.

Waste Management 14

14.43 If the waste containers are to be transported to ground level by a goods lift, it must be large enough to accommodate the waste container as well as the porter. In large schemes more than one waste container will need to be accommodated. The lift doors must be sized to allow free access for the waste containers. In addition, a written statement must be attached describing the proposed method for transporting the containers at ground level, including parking arrangements for a tractor unit and trailer, if these are required.

14.44 For larger developments, compaction units must be used for both refuse and recycling (in separate units). Refuse bins and recycling bins located around the development can be transported to and emptied into the chutes by site management staff. The units would be provided by the developer or site management company, and removed/emptied/returned by the council on a regular basis. The council should be consulted on compaction units before any purchases are made, to ensure compatibility with existing collection vehicles.

14.45 The use of compacting disposal units does not necessarily reduce the amount of space required for waste storage as there must be sufficient capacity for waste even when the mechanical aid fails to function.

14.46 When calculating number of compactors/frequency of collections required, total capacity required should be calculated based on the $A \times ((B \times C) + 30)$ formula discussed earlier. For refuse, assume a 4:1 volume reduction and so divide the required capacity by 4 to arrive at the compactor capacity required. For mixed recycling, assume a 3:1 volume reduction and so divide the required capacity by 3 to arrive at the compactor capacity required.

Key Principle - WM8

Bulky Waste

For multiple occupancy developments, provision should be made for a storage area in which to contain any household bulky waste (e.g. furniture, white goods) awaiting collection by the council.

14.47 The council promotes a reuse service which can provide collection of furniture, electrical waste and other bulky items and reuse or recycle them. This is a chargeable service.

14.48 The council itself can remove waste from this storage area on a regular or ad-hoc basis depending on requirements. This is a chargeable collection, and waste collected is generally disposed of rather than recycled (the exception being white goods and electrical waste, which are recycled).

14.49 The recommendations above regarding bin store rooms (e.g. well ventilated, wash down facilities) also apply here.

14.50 Applicants are recommended to consider the provision of space for bulky waste as early as possible in the design of development.

Key Principle WM9

Commercial Waste

In commercial developments, sufficient space should be designed in to accommodate the appropriate number of bins or bags, for both recyclables and non-recyclable waste and to meet the specific needs of the potential user.

14 Waste Management

14.51 Careful consideration must be given to the likely composition and quantities of wastes expected to arise and whether the type of handling system proposed is compatible with that operated by the council in case the occupier opts to use the council as the waste carrier.

14.52 Specific guidance on waste capacity and storage requirements for different types of commercial premises (including restaurants/fast food outlets, offices, hotels and retail) are contained in Appendix 5 of this SPD.

14.53 The council offers collection of the same range of co-mingled materials for commercial recycling as it does to residents, thereby minimising the need for a number of separate bags/containers. It should be noted that other waste collectors collect recycling materials segregated and more space may be necessary both internally and externally for recyclables, if the intention is to use a private collection company.

14.54 For premises such as pubs, bars, nightclubs and restaurants, where a large number of empty bottles are produced, adequate space must be provided for their separate storage and collection.

14.55 In all locations where clinical waste is likely to be generated (e.g. medical, dental and veterinary establishments), separate storage and collection arrangements are required for clinical and non-clinical waste. This is particularly important where orange bags are in use for clinical waste, as there is potential for cross-contamination with smart sacks.

Mixed Use Developments

14.56 Storage areas for commercial and domestic premises within the same development or area should be completely separate to avoid confusion over ownership and charging for commercial collections.

14.57 If possible the storage unit should have the capacity to contain two types of euro bins (one for general waste of 1100 litre and one for recycling of 1280 litre). The euro bin will need the access requirements set out in Appendix 5 of this SPD.

14.58 The siting of storage areas for waste containers and chutes should not cause householders to carry refuse further than 25m (excluding vertical distance)

14.59 Residential units will normally be expected to have independent storage (unless full portorage is provided) but the developer must give consideration to the provision of communal recycling facilities, using either conventional above ground banks or underground containers.

14.60 Smaller sack compactors are not suitable for mixed use developments.

Commercial Usage

14.61 If the developer intends the council to be the waste carrier, the developer/managing agent can either take one contract with the council to cover all the commercial businesses or each business can take out individual contracts in advance of supply of bins. Fees apply for both waste and recycling collections. This is either on the basis of bin rental charges plus a collection charge or the number of pre-pay sacks supplied where a sack-based collection service is required. Appendix 5 provides advice on the supply of compatible containers. The council can provide both refuse and recycling sacks and eurobins for businesses. Fees apply on the basis of bin rental charges plus a collection charge according to the number and frequency of collections. The maintenance, repair and replacement of containers are included within the terms of the hire agreement, except where damage is caused through vandalism or negligence of the lease. A council Sales Officer will be available to advise on all available options. Please telephone 020 8753 1100 for further information.

14.62 Suitable arrangements must be made for the management and maintenance of any refuse/recycling areas, including cleansing of the site and upkeep of any soft landscaping.

14.63 If a developer is considering engaging a private licensed waste contractor to handle waste arising from commercial premises, they should consult potential waste contractors on the design of purpose built facilities at an early stage, copying their proposals to the Council. The specification details of the kinds of containers that are commonly used by the council and the private sector are very similar.

14.64 Each application will be assessed to ensure that the number of containers or sacks provided will meet the needs of the business. Normally this would be on the basis of a weekly collection, however, where this frequency is not sufficient, consideration will be given to more frequent collections where more space cannot be afforded for storage.

14.65 Although the council does not offer a separate commercial food waste collection, there are numerous collections offered by private companies across London. In particular, for restaurants and fast food outlets, storage space for food waste containers should be planned into the design of the kitchen, along with recycling and refuse. External storage space for food waste containers should also be considered, to minimise odour and mess.

14.66 Owing to the nature of food waste, food premises should have adequate space to store waste in one or more wheelie bins or eurobins of a suitable size. It is recommended that in order to avoid potential odours, a minimum of two collections per week should be allowed for.

Alternative Waste Management Technologies

14.67 For large developments (commercial and residential), such as those within the borough's Opportunity Areas and Regeneration Areas, on-site waste management facilities should be provided to manage waste generated by the development. The council is keen to promote the use of new innovative waste management technologies which can lead to increases in recycling and reductions in operational costs and carbon emissions.

14.68 In terms of on-site waste management facilities, the council recommends that alternative methods for on-site waste management are considered by applicants for large developments. This could include for example vacuum systems.

14.69 A vacuum system such as that currently in use on a new development in Wembley is recommended. The system consists of a network of underground tubes into which waste from residents and businesses is deposited, before suction is applied to transfer the waste to a single bulking-up location. Multiple waste streams can be collected in this way, and it has the following advantage:

- Improved residential environment – due to fewer vehicle movements on site, less noise, and fewer emissions;
- Greater waste separation and recycling;
- Lower operational collection costs;
- No need for multiple bin locations, increasing development footprint available for residential or commercial use.

14.70 For major developments, the council recommends underground Envac systems and other technological waste solutions are recommended to be considered in major developments. Applicants should discuss options for on-site waste management facilities in major developments as early as possible during pre-application discussions. These proposals will be looked upon favourably by the council.

14 Waste Management

Key Principle - WM10

Community Recycling Facilities

Where a developer is including communal recycling facilities for use by the general public in addition to specific recycling facilities for the occupiers, the location of the community recycling site should be easily accessible for both users and collection teams.

14.71 It is recommended that in order to achieve optimum level of use by the public, these communal sites should be located by entrance/exit points to housing, transport interchanges or main routes to local facilities.

14.72 In addition the facility must be secure (locked into position), not obstruct any utility points and be located away from windows and ventilators to minimise odour and noise nuisance. Design and location of the facility should be forwarded to the council to ensure it will permit safe use, not obstruct driver sightlines and design out crime.

14.73 Suitable arrangements must be made for the management and maintenance of any refuse/recycling areas that are not included on public highway, including cleansing of the site and upkeep of any soft landscaping.

14.74 In terms of collection requirements the policies for collection vehicle requirements in Appendix 5 apply.

Litter, Cleanliness and Grounds Maintenance

14.75 New developments are usually located in areas of private land, and any areas not classed as public highway would not be cleansed by the council. Under the Environmental Protection Act (1990) landowners have a responsibility to keep land under their control free of litter. The council offers a chargeable sweeping/cleansing service for private land, estimates are available upon request.

14.76 Developers need also to consider whether litter bins are required for users of communal areas or visitors to the site. If litter bins are to be installed, dual litter bins for the separate collection of litter and recycling should be used. Developments near to tube stations may also want to consider the installation of commuter recycling bins for the collection of newspapers.

14.77 Developments of flats with communal grounds should show where arrangements will be made for the on-site composting of garden waste. Composting on-site will result in cost savings for the management company, reducing disposal costs and providing a supply of compost to use on-site.

Key Principle - WM11

Planning Application Requirements

Planning applications should be supported by a Refuse and Recycling Management Plan. The proposed refuse and recycling storage points and the access routes for collection vehicles should be clearly identified on submitted plans.

Waste Management 14

14.78 The provision of adequate facilities for refuse and recycling storage should be considered at an early stage in the design of development. Care must be taken to ensure that the proposed arrangements are acceptable in terms of their design, appearance and location so as to minimise noise & odour nuisances and impact on the street scene. Arrangements for refuse and recycling facilities (internal and external) should be detailed in a Refuse and Recycling Management Plan.

14.79 Particular care needs to be taken when designing the access to bin storage areas above or below ground floor level, which have to be accessed by the collection vehicles using a ramp.

14.80 Where possible full details of the proposals should be submitted at the application stage. Otherwise a suitable condition will be attached to any outline planning permission requiring the submission of details of refuse and recycling provisions for the development. Appendix 5 indicates the information that is required to be submitted as part of a Refuse and Recycling Management Plan.

14.81 If the developer is considering engaging a private waste contractor to handle waste arisings, they should consult potential contractors on the design of purpose built facilities at an early stage, copying their proposals to the council.

14.82 Discussions concerning the provision of waste storage should take place directly with the council, at the earliest possible stage during pre-application discussions. These guidance notes seek only to provide some basic advice on the requirements for storage of waste and recyclable materials. In addition to the council's requirements, the London Waste & Recycling Board have also produced some useful guidance for developers which can be found on their website (<http://www.lwarb.gov.uk/what-we-do/resource-london/successes-to-date/efficiencies-programme-outputs/>)

For consultation and advice on any scheme, please contact the waste and recycling team at the council on 0208 753 1100 or email cleaner.greener@lbhf.gov.uk.

14 Waste Management

15 Residential Moorings

15.1 The tidal River Thames flows through the borough of Hammersmith and Fulham. This waterway is designated as a conservation area of Metropolitan importance. Residential moorings located in appropriate sections of the borough's waterways namely the River Thames can contribute towards meeting the borough's strategic housing target. A brief description of the River Thames is provided below.

15.2 The tidal River Thames - A seven kilometre stretch of the tidal River Thames flows through the borough, from below Chiswick Eyot to Chelsea Creek, forming the borough's southern boundary. Development along this stretch of the river displays different characteristics reflecting changes in the river's use through history. Today, this stretch of the river is one of the busiest on the River Thames, being used for a wide range of activities including commercial and leisure navigation, public transport and rowing and canoeing. In terms of residential moorings, there are currently two residential moorings sites within the borough at the Dove Pier and Mr See's Moorings along Hammersmith Mall. A short term mooring development has recently been completed at Imperial Wharf.

15.3 There are some constraints to developing additional residential moorings along the River Thames as it flows through the borough based on:

- the diversity of uses and the extremely heavy use the river is currently subject to along this stretch of the river that may be adversely affected by additional residential moorings;
- further constraints associated with existing riverside land uses that may render nearby residential moorings impractical or unsuitable;
- environmental and ecological constraints; or
- difficulties in providing potential sites with suitable supporting infrastructure;

15.4 Notwithstanding the above, there may be some potential to develop additional residential moorings in the South Fulham area which extends from the Hurlingham Club downstream to the Cremorne railway bridge. The council will support new residential moorings development along this stretch of the river subject to any proposal satisfying environmental and other conditions as required by relevant licensing authorities.

15 Residential Moorings

Policy Context 1

National Policy

The National Planning Policy Framework (March 2012) requires local planning authorities to boost significantly the supply of housing (para.47)

On 27 August 2011, the former Housing Minister Grant Shapps issued a statement encouraging councils to allow more residential moorings on local waterways as part of the government's 'Localism' agenda. The Minister stated that this initiative could help provide additional homes for people, allowing many to live in areas that otherwise might be out of their financial reach. As a further incentive for local councils to take up this initiative, the government made new residential moorings eligible for the New Homes Bonus whereby the government will match the amount of council tax levied on new moorings.

London Plan

The London Plan contains a number of policies that are relevant to the development of new residential moorings on local waterways. These policies are listed below:

- Policy 7.25 – Increasing the use of Blue Ribbon Network for Passengers and Tourism
- Policy 7.26- Safeguarded Wharves (Hurlingham Wharf, Swedish Wharf & Comley's Wharf)
- Policy 7.27 – Blue Ribbon Network: Supporting Infrastructure and Recreational Use
- Policy 7.29 – The River Thames
- Policy 7.30 – London's canals and other rivers and waterspaces

Local Plan

The council's Local Plan contains policies that are relevant to the development of new residential moorings in the borough. These policies are listed below:

- Policy H01: Housing supply which aims to increase the supply of housing
- Policy RTC1 – 'River Thames' states among other things that the council will work with relevant partner organisations to enhance the use of the River Thames .
- Policy RTC2 - Access to the River Thames and Foreshore
- Policy RTC3 – The design and appearance of development within the Thames Policy Area; and
- Policy RTC4 - Water-based activity.
- The Thames Strategy: Kew to Chelsea also provides further local guidance for the stretch of the River Thames within Hammersmith and Fulham.

Statutory agencies' policies on residential moorings

15.5 The Port of London Authority is the licensing authority for applications concerning the development of new residential moorings in the tidal River Thames.

15.6 The Port of London Authority (PLA) is the owner of the riverbed. Any development proposal involving works in, under or over the tidal Thames below the mean high water level requires a licence from the PLA. ⁽²⁶⁾

15.7 The Port of London Authority policy on residential and visitor moorings on the tidal river Thames is available at (check link): www.pla.co.uk and further guidance can be found in the PLA's Vision for the Tidal Thames <http://www.pla.co.uk/assets/thevisionforthetidalthames.pdf> and the Boating on the Thames website. (<https://www.boatingonthethames.co.uk/>)

15.8 The Environment Agency does not regulate the licensing of residential moorings on the tidal River Thames. However, the Agency is a statutory consultee in the planning process and will provide formal advice on any environmental and flood related implications of planning applications concerning new residential moorings. The Environment Agency is also responsible for the provision of flood defences along the river and ensuring that these defences are maintained by riparian owners. As such, the agency will also comment on any potential impacts that proposed residential moorings may have on existing flood defences.

Key Principles

15.9 The principles listed below establish more detailed guidance on the application of policies within the Local Plan that will be used in the consideration of planning applications for residential moorings.

Key Principle - RM1

Proposals for Residential Moorings

Developers seeking to develop new residential moorings through new development or a change of use of existing infrastructure should comply with the policy guidelines of statutory licensing authorities as part of obtaining approval for new residential moorings.

15.10 Residential moorings are defined in this SPD as moorings that:

- have received planning approval for residential use by the local authority; and
- have been granted a licence by the relevant statutory body (the Port of London Authority) responsible for licensing moorings on the river Thames.

15.11 Vessels moored on these residential moorings should be used as the occupier's sole or main residence. The 'residential use' of the moored vessel should be distinguished from other vessels whose primary use is for leisure or recreational purposes, even if this involves some element of overnight occupation (whether at the mooring site or whilst cruising).

15.12 Applications to develop new residential moorings on the river Thames will require both a licence granted by relevant licensing authorities and planning approval by the council.

15.13 The granting of licences for new residential moorings on the tidal River Thames is controlled by the Port of London Authority (PLA). The PLA has policies in place to determine whether to grant licences for new moorings developments. Links to these policies are provided in the section above. As explained further in KP RM4 (Impacts on Navigation) new moorings need to be suitably located and managed as to not impede or pose any risk to navigation on the River Thames.

15.14 In planning terms, residential moorings fall within the 'Sui generis' Use Class. The following development is likely to amount to a material change of use and will require planning permission:

- Any new proposed residential mooring, or change from any other form of mooring, such as from leisure use to residential use, irrespective of where the mooring is located;

15 Residential Moorings

- The replacement of a vessel at a mooring with a purpose built structure, floating or otherwise;
- A change of use from static vessels or floating platforms used by occupants for holiday purposes to being used by occupants as their main place of residence.

15.15 The council will treat proposals for residential moorings as residential development and will assess such proposals using national, regional and local planning policies.

Key Principle - RM2

Provision of Suitable Infrastructure

The council will generally expect proposed moorings sites to be provided with adequate land-based utility infrastructure and support facilities, including:

- sewage disposal;
- mains electricity with separate meterage for individual berths;
- mains water;
- secure waste and recyclable disposal facilities for use by moorings residents.
- appropriate riparian life saving equipment.

15.16 As vessels moored on residential moorings are taken to constitute the primary residence for occupants, the council will normally expect new moorings developments to be provided with basic infrastructure and facilities. This includes provision of appropriate riparian life saving equipment (such as grab chains, access ladders and life buoys) along the river edge to a standard recommended in the 1991 Hayes Report on the inquiry into River Safety to help improve the safety and security of the River Thames.

15.17 The council recognises that the provision of some, or any of the utility services and facilities listed above may not be possible due to site constraints and the potential adverse amenity impacts associated with installing this infrastructure near the moorings site. Where this is the case, developers of proposed residential moorings sites will need to provide satisfactory justification with their planning applications for not providing the above facilities. This could include:

- details of the site constraints including amenity issues mitigating against the provision of the infrastructure and facilities detailed above; or
- evidence showing that the prospective occupiers of the site would prefer to be more self-reliant and do not require this infrastructure or services; or
- evidence of the existence of similar facilities at a reasonable close distance from the proposed moorings site. Where these facilities are present, developers should identify the locations of these facilities and demonstrate that occupants will be able to easily access and use these services at all times.

Key Principle - RM3

Preserving the Character and Amenity of the River Thames and Waterside Locations

New moorings should be designed to complement and respect the character and amenity of their setting and that of the waterway on which they are to be located.

Residential Moorings 15

15.18 The stretches of the River Thames a within the borough are designated conservation areas. The council has also designated the Thames riverside area as the 'Thames Policy Area', where additional design requirements will apply in order to reflect and better protect the distinctive and unique character of the natural and built environment of the area.

15.19 The council will expect mooring designs to respect the existing character and amenity of both the waterway where they will be located and surrounding areas. Applicants should submit supporting design and access statements with planning applications, and applicants are encouraged to read relevant background documents, such as the 'Thames Strategy Kew to Chelsea' and riverside conservation area character profiles for detail about the characteristics of the borough's waterways.

15.20 Long lines or other intensive concentrations of permanent moorings are unlikely to be permitted on the River Thames as they can:

- be visually intrusive and impact upon existing character and amenity;
- restrict views of waterways;
- impact on riparian biodiversity; and
- provide an undesirable sense of enclosure.

15.21 The council will aim to ensure that new moorings developments are sensitively designed and respect the existing character of both the waterway and the surrounding area. Sufficient space should exist between individual mooring developments to avoid the creation of extensive concentrations of moored vessels.

15.22 Generally, planning consent will not be granted for moorings developments proposed alongside public parks and other open spaces abutting the council's waterways if these will result in a loss of the open character or amenity of the area. The change of use of the adjacent waterside land for uses associated with the residential mooring, such as ancillary structures, will not normally be permitted where this is intrusive or detrimental to the riverside environment.

15.23 New moorings developments proposed to be located within conservation areas, including within the Thames Policy Area, should be designed in a manner that will not adversely impact upon strategic views into and out of these conservation areas. The council will take into account the principles set out in conservation area character profiles or other policy documents as appropriate, in order to determine the level and extent of any impacts on strategic views associated with proposed residential moorings.

Key Principle - RM4

Characteristics of Moored Vessels

When granting planning permission for new residential moorings, the council will use planning conditions and/or S106 Agreements aimed at controlling the design and other attributes of the vessels to be berthed at the proposed mooring development.

15.24 The council is keen to ensure that residential moorings complement and enhance the distinctive existing character of their waterside locations. The relative permanence of new moorings reinforces the need for careful management not only of the mooring design, but also of the vessels that will be moored there on a permanent basis.

15.25 Vessels moored on a permanent basis at approved residential moorings should:

15 Residential Moorings

- be capable of navigation, moving under their own power with necessary propulsion and steering. The vessel's superstructure (the structure above the main deck) must have a height, length, width and position that relates to the character of, and complements the locality it is sited in;
- conform to the typical attributes of houseboats on the waterway they are to be located on ie. the River Thames in terms of their size, appearance and design and where these would relate to or enhance the surrounding area, the existing character of the river and contribute to the ecological and visual amenity of the area.
- demonstrate the above with relevant evidence in a supporting statement.

15.26 The use of renewable energy technologies on vessels in residential moorings should not adversely impact upon the character and visual amenity of the area and should not adversely impact upon on strategic views. Where planning permission has been granted for the residential use of a mooring (i.e. use as a sole or main residence) and the vessel is replaced by one of similar style, length and breadth, this will not normally constitute development and therefore no new planning permission will be required. However, the replacement of such a vessel with one that does not share a similar appearance or attributes will be deemed to be a material change of use and/or a fundamental change in the nature and character of the approved application and will require planning approval.

Key Principle - RM5

Impacts on Navigation

New moorings should be suitably designed and located so as not to impede or pose any risk to navigation on the River Thames

15.27 The borough's waterways are used for a variety of functions, including use as a navigation route for transporting commercial freight, public transport and recreational boat use. Protecting the navigational capacity of the borough's waterways is a matter of high priority for all key stakeholders. Accordingly, new moorings developments should be designed and located in a manner that does not affect:

- existing navigation, including existing navigation speeds and the normal operation of commercial, public transport and recreational craft; and
- the range and operation of established water-based uses including rowing, sailing, kayaking etc. and recreational cruising.

Key Principle - RM6

Access for Emergency Services to Residential Moorings

Wherever possible, sites for proposed residential moorings should have road access to at least part of the site to facilitate access by emergency services.

15.28 Easy road access to moorings sites would allow emergency vehicles such as ambulances and fire engines to quickly access these sites to attend emergencies.

15.29 Ideally, all proposed moorings sites should have road access to allow emergency service vehicles to gain access to at least part of the site. However, the council recognises that given the built up nature of the borough, there may be occasions when proposed residential mooring sites may not

have direct road access. Where direct road access to the site is not possible, developers should identify the closest access point and assess its overall suitability for use by occupiers and emergency vehicles.

Key Principle - RM7

Residential Moorings and Flood Risk Management

The council will expect developers to be able to demonstrate that moorings do not cause detrimental impacts on flood defences and are designed to permit safe access from the site in extreme flood conditions.

15.30 The council will expect new moorings developments to be designed in a manner that would allow occupants of moored vessels to have safe access to and from moored vessels even during extreme flood conditions. In line with the Environment Agency's role as a statutory consultation body, planning applications concerning new residential mooring developments will be referred to the Agency for comment in relation to their impacts on existing flood defences, their vulnerability to floods, and other environmental impacts associated with the development.

Key Principle - RM8

Parking for Residential Moorings

Applications for any new car parking spaces associated with new residential moorings will be determined in accordance with the requirements of the Transport policies in this SPD.

15.31 The council will not normally support the provision of additional car parking spaces for new moorings developments. Where additional parking is proposed, the council will require developers to prepare a transport assessment justifying the need for, and impacts of these additional parking spaces.

Key Principle - RM9

Residential Moorings and access for all

New residential moorings developments and proposed improvements to existing residential moorings developments should aim to ensure the development is designed to allow safe access to and from the moored vessels for people of all ages and abilities.

15.32 While it is recognised that living on houseboats may not be practical for people with high levels of mobility impairments, developers of new moorings developments and those planning on improving existing developments should aim for these developments to be built in accordance with the principles of accessible and inclusive design.

15 Residential Moorings

16 Glossary

Above Ordnance Datum – (also abbreviated to 'AOD') see Ordnance Datum.

Acoustic lobby - inner and outer acoustic doors, designed to prevent both sets of doors opening at the same time to prevent escape of internal noise

Air Quality Assessment – An assessment of the impact of a development on the levels of certain pollutants in the local area and potential for exposure to those pollutants.

Air Quality Management Area (AQMA) – An area where air quality objectives are likely to be exceeded. Declared by way of an order issued under Section 83(1) of the Environment Act 1995.

Air Quality Objectives – Air quality targets to be achieved locally as set out in the Air Quality Regulations 2000 and subsequent Regulations. Objectives are expressed as pollution concentrations over certain exposure periods, which should be achieved by a specified target date. Some objectives are based upon long term exposure (e.g. annual averages), with some based on short term objectives. Objectives only apply where a member of the public may be exposed to pollution over the relevant averaging time.

Air Source Heat Pump – A heating and cooling system that uses outside air as its heat source and heat sink. In domestic heating use, an ASHP absorbs heat from outside air and releases it inside during winter, and can often do the converse in summer.

Archaeological interest - An interest in carrying out an expert investigation at some point in the future into the evidence a heritage asset may hold of past human activity. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them. These heritage assets are part of a record of the past that begins with traces of early humans and continues to be created and destroyed.

Archaeological Priority Areas - These are areas of particular archaeological importance or vulnerability in the Borough which have been identified by the council with the advice of English Heritage. In these areas the council's policies and proposals for archaeological sites will apply. Planning applications affecting such areas will generate appropriate consultation, which could in turn lead to further processes of site assessment.

Architectural and artistic interest - These are interests in the design and general aesthetics of a place. They can arise from conscious design or fortuitously from the way the heritage asset has evolved. More specifically, architectural interest is an interest in the art or science of the design, construction, craftsmanship and decoration of buildings and structures of all types. Artistic interest is an interest in other human creative skill, like sculpture.

16 Glossary

ATTrBUTE. A travel plan building, evaluation and scoring tool, developed by TfL

“A” weighting - frequency weighting that has been developed to imitate the ear’s varying sensitivity to sound of different frequencies.

Biodiversity - The term ‘Biological Diversity’ or ‘Biodiversity’ is generally described as the variety of life on earth, and includes all species of plants and animals and the natural systems that support them. The Convention on Biological Diversity (1992), to which the UK is a party defines ‘Biological Diversity’ as:

‘The variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.’⁽²⁷⁾

Importantly, the term ‘Biodiversity’ incorporates all species and habitats, both rare and common, and also seeks to ensure the protection of genetic diversity. This is particularly relevant in the current context where even once common species such as the House Sparrow and Starling are declining rapidly and the rate of species loss and extinctions are at unprecedented levels.

Blue Badge. Blue parking badges allow cars carrying disabled people to be parked near shops, stations and other facilities, and in LBF controlled parking zones and meter parking bays. Blue Badges can only be issued to people who meet the eligibility criteria. They can be used in any car the badge holder is driving or is a passenger in.

Blue Roof: A roof designed to store water, typically rainfall. Blue roofs that are used for temporary rooftop storage can be classified as "active" or "passive" depending on the types of control devices used to regulate drainage of water from the roof. They can be combined with living roofs.

Borehole: A hole drilled in the ground in order to take samples and to allow gas and water monitoring.

BREEAM – The Building Research Establishment Environmental Assessment Method (BREEAM) is an industry measure of energy and environmental performance of non-residential buildings. There are 5 ratings as follows: Pass, Good, Very Good, Excellent and Outstanding.

Brownfield Site: A site that has been generally abandoned or underused where redevelopment is complicated by actual or perceived environmental contamination. Only a small proportion of Brownfield sites will meet the definition of contaminated land

27 Convention on Biological Diversity, opened for signature 5 June 1992 (entered into force 29 December 1993)

Brown Roof – A roof that has a layer of soil or other material providing a habitat or growing medium for plants and/or wildlife. It may also include additional layers such as a root barrier and drainage and irrigation systems.

Carbon Dioxide: A constituent of landfill gas. It is heavier than air and will asphyxiate if present in sufficient concentrations.

Car Clubs, also known as Community Car Pooling .Car club schemes are aimed at sharing the ownership and use of cars. Owning a car is expensive, but individual journeys are relatively cheap. Once a car is acquired it also acts as a disincentive to using public transport. Community car sharing schemes are one solution which has proved very successful in Europe and is now being looked at in trials in Britain. The principle is different from conventional car hire in that the cars are kept locally and can be used at short notice and for short periods of time. Community Car Pooling Schemes ensure that cars are available when people really need them, but reduce unnecessary use and pressure for parking spaces.

Carplus promotes and supports the development of car clubs and car sharing schemes. Carplus aims to create a national network of services in the UK, which will complement the most sustainable transport modes.

Competent Person: The competent person would normally be expected to be a chartered member of an appropriate professional body (such as the Institution of Civil Engineers, Geological Society of London , Institution of Environmental Management) and also have relevant experience of investigating contaminated sites or who holds the Specialist in Land Condition (SiLC) qualification administered by the Institute of Environmental Management

Community Infrastructure Levy (CIL). The discretionary charge on development which Local Planning Authorities will be empowered to make in order to fund local infrastructure requirements.

Conservation - The process of maintaining and managing change to a heritage asset in a way that sustains and where appropriate enhances its significance.

Contaminated Land: Any land where the actual or suspected presence of substances in, on or under the land may cause risks to people, property, human activities or the environment, regardless of whether or not the land meets the statutory definition in Part 2A of the EPA 1990*.

*The following definition of Contaminated Land is not used in this document other than where Part 2A of the EPA 1990 is specifically referenced:

Contaminated land is defined in Section 78 A (2) of the Environmental Protection Act 1990 as

16 Glossary

"any land which appears to the local Authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:-

- a) significant harm is being caused or there is a significant possibility of such harm being caused; or
- b) pollution of controlled waters is being, or is likely to be caused."

Contaminated Land Register: The public register maintained by the enforcing Authority under the provisions of 78R of the Environmental Protection Act 1990 of the particulars relating to contaminated land. The Register contains details of land that has been identified by the Local Authority, which is giving rise to significant harm or polluting controlled water. It also includes details of any enforcement action being undertaken by the Authority.

Controlled Waters: Defined in Section 104 of the Water Resources Act 1991 and includes territorial and coastal water, inland fresh waters, and ground waters.

Considerate Contractors Scheme – A scheme designed to ensure that construction and routine maintenance activities progress without making life unpleasant for people who live and work nearby.

Combined Heat & Power (CHP)/Combined Cooling Heat & Power (CCHP) – The simultaneous generation of usable heat and power (usually electricity) in a single process, thereby reducing wasted heat and putting to use heat that would normally be wasted to the atmosphere, rivers or seas. CHP is an efficient form of decentralised energy supply providing heating and electricity at the same time. CHP's overall fuel efficiency can be around 70-90% of the input fuel, depending on heat load; much better than most power stations which are only up to around 40-50% efficient.

Community Heating – Distribution of steam/hot water through a pipe network to heat a large area of commercial, industrial or residential buildings or for industrial processes. The steam/hot water is supplied from a central source (e.g. a combined heat and power plant).

Ctr - a correction value added to the DnT,w value for dwellings and some other applications to place greater importance on the lower frequency values

Current Use: Any use which is currently being made, or is likely to be made, of the land and which is consistent with any existing planning permission (or otherwise lawful under town and planning legislation)

dB - decibel, the unit to measure sound

Decentralised Energy – Power generation in the UK is still largely centralised with large power stations generating electricity which is distributed over large distances via the National Grid. Generating power on a smaller scale and closer to the end user (i.e. decentralised), is much more energy efficient and can generate potential cost savings for users. Decentralised energy generation using CHP or renewable energy technologies can help significantly reduce carbon dioxide emissions.

Demolition Protocol – A resource efficiency model showing how the production of demolition material can be linked to its subsequent specification and procurement as a high value material in new builds.

Designated heritage asset - A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated as such under the relevant legislation.

DnT,w+Ctr - airborne values representing the weighted, standardised level difference between a source room and receiver room

Drainage Hierarchy – The London Plan outlines the following drainage hierarchy for SuDS measures:

1. store rainwater for later use;
 2. use infiltration techniques, such as porous surfaces in non-clay areas;
 3. attenuate rainwater in ponds or open water features for gradual release;
 4. attenuate rainwater by storing in tanks or sealed water features for gradual release;
 5. discharge rainwater direct to a watercourse;
 6. discharge rainwater to a surface water sewer/drain; and
 7. discharge rainwater to the combined sewer.
-

Ecological networks: These link sites of biodiversity importance and provide routes or stepping stones for the migration, dispersal and genetic exchange of species in the wider environment.

Embodied Energy – The total life cycle energy used in the collection, manufacture, transportation, assembly, recycling and disposal of a given material or product.

Energy Assessment – A report evaluating the energy use of a proposed development which shows how it has been designed to reduce carbon emissions in line with the council's Development Plan policies on tackling climate change. The assessment should show how energy efficiency measures,

16 Glossary

including passive design and low and zero carbon technologies such as decentralised communal energy systems and renewable energy generation will be implemented to reduce energy use and minimise CO2 emissions.

European site: means candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas (for advice on statutory obligations affecting biodiversity and geological conservation, see Circular 06/2005).

Exceedence – Concentrations of a specified air pollutant greater than the appropriate Air Quality Objective.

Exception Test – The 2 stage assessment required for some development types in high flood risk areas to determine whether or not the negative implications of developing in a flood risk area can be balanced against the potential positive contributions to sustainable development that new development can bring. The Exception Test should not be used as a means of supporting inappropriate development.

Flood Resilient Design – Can include measures such as putting living accommodation on the first floor, using flood-proof materials, incorporating non-return valves to stop surcharges from sewers entering properties, integration of flood barriers etc.

Flood Risk Assessment – Flood Risk Assessments (FRA) are required when a planning application is submitted in an area at risk of flooding. This requirement is set out in the Government's policy on development and flood risk as stated in paragraph 103 of the NPPF.

FSC – Forestry Stewardship council – certifies timber from renewable sources that are managed according to sustainable environmental standards.

Green corridors: Extensive contiguous areas of trees and open space which straddle or run along the major road, rail and river/canal routes into London. They may be narrow, often only the 'unused' margins of development, but they are of value as habitats for wildlife and plants and local landscape features and because they may link nature conservation areas. Certain transport routes such as the Thames and the Grand Union Canal also act as corridors for animals and plants in the same way as green corridors. However, these have been designated as nature conservation areas because of their greater nature conservation importance and are not shown as green corridors.

Green infrastructure: The multifunctional, interdependent network of open and green spaces and green features (e.g. green roofs). It includes the Blue Ribbon Network but excludes the hard-surfaced public realm. This network lies within the urban environment and the urban fringe, connecting to the surrounding countryside. It provides multiple benefits for people and wildlife including: flood management; urban cooling; improving physical and mental health; green transport links (walking and

cycling routes); ecological connectivity; and food growing. Green and open spaces of all sizes can be part of green infrastructure provided they contribute to the functioning of the network as a whole. See also Urban Greening.

Greenfield Run-off – The surface water run-off from a site that would occur in its undeveloped and undisturbed state. Greenfield runoff characteristics are described by peak flow and volumes and rates of runoff for rainfall events of specified duration and return period (frequency of occurrence).

Green Roof – A green roof is a roof of a building that is partially or completely covered with vegetation and a growing medium, planted over a waterproofing membrane. It may also include additional layers such as a root barrier and drainage and irrigation systems. See the GLA's 'Living Roofs and Walls' report: www.london.gov.uk/sites/default/files/uploads/living-roofs.pdf for further information.

Ground Gas: Gas that is produced by the biodegradation of organic material. The gas contains principally a mixture of methane gas and carbon dioxide. Other gases in trace concentrations are also present.

Ground Source Heat Pump – A heat pump that removes heat from the earth or ground water in cold weather and transfers it to the house through an underground piping system. The process can be reversed in warm weather to transfer heat into the ground.

Ground Water – Water within soils and rock layers.

Guideline Values/ SGVs: Generic criteria for concentrations of contaminants designed to be protective of specified receptors in a range of conditions. Soil Guideline Values (SGVs) relate to chronic risks to human health and are derived from the CLEA model for various land use scenarios.

Harm: Defined in Section 78 A (4) of the Environmental Protection Act 1990 as

"harm to the health of living organisms or other interference with the ecological systems of which they form part and, in the case of man, includes harm to his property."

Hazard: A substance, feature or situation that has the potential to cause harm, either directly or indirectly, to the environment, including humans (construction workers and site users and occupiers), soil, water, air, flora and fauna, buildings and commercial assets. They may be chemical, biological or physical.

Headspace: The vapour mixture trapped above a solid or liquid in a sealed vessel.

16 Glossary

Heritage asset - A building, monument, site, place, area or landscape (including an archaeological priority area) positively identified as having a degree of significance meriting consideration in planning decisions. Heritage assets are the valued components of the historic environment. They include designated heritage assets (as defined in the NPPF) and assets identified by the council during the process of decision-making or through the plan-making process (including local listing).

Heat Network – A heat network distributes heat to several users, just as an electricity grid distributes power. The heat energy produced and recycled by CHP plants during electricity generation can be distributed to local homes and businesses via a heat network. Recycling heat in this way has an important role to play in the reduction of carbon dioxide emissions.

Hot Food Takeaway shops have been classified as falling within Class A5 of the Town and country Planning Use Classes Order. Establishments whose primary business is for the sale of hot food for consumption off the premises, fall within this A5 Class.

Highway. The highway is a way over which the public have the right to pass and re-pass. Public Highway is a highway that is maintained at public expense (i.e. by the highway authority). Highways not maintainable at the public expense are nonetheless highways. A highway may also be a waterway or a navigable river.

- Carriageway – part of a highway over which the public have a right of way for vehicles;
 - Footway – part of a highway over which the public have the right of way on foot only.
-

International, national and local sites of importance for biodiversity: All Sites of Special Scientific Interest, Special Areas of Conservation, Special Protection Areas, and Ramsar sites, Local Sites and natural habitats (as identified in the Natural Environment and Rural Communities Act 2006 section 41 list) and areas identified for habitat restoration and creation.

Intrusive Investigations: An investigation of land (for example by exploratory excavations), which involves actions going beyond simple visual inspection of the land, limited sampling or assessment of documentary information.

iTrace. iTrace is centralised software package adopted by all London Boroughs and other authorities nationally that inter alia, allows easier assessment of Travel Plans and monitoring of their efficacy, provides template documents and easier sharing of information between Travel Plan authors in order to encourage the spread of best practice.

Impermeable Membrane or Barrier: Used to describe materials, natural or synthetic, which prevent the passage of liquids or gases. Landfill gas Barriers and membranes are used to prevent gases migrating or entering properties thereby ensuring the building is safe.

In situ: Unexcavated, remaining in the subsurface.

LA90 - the A-weighted noise level exceeded for 90% of the time period, used as a measure of background noise

LAm_{ax} - the A weighted maximum noise level that was recorded during a monitoring period

Landfill Site: An area of land, depression or former quarry which has been or is being infilled with waste materials.

Land Affected by Contamination: See 'Contaminated Land' definition above

Living Roof – See 'Brown Roof' and/or 'Green Roof'.

LnTw - weighted standardized impact sound pressure level of impact sound transmitted between rooms

Major Development – As defined in the London Plan, major developments are defined as:

- For dwellings: where 10 or more are to be constructed (or if number not given, area is more than 0.5 hectares);
- For all other uses: where the floor area will be 1000 sq metres or more (or the site area is 1 hectare or more).

The site area is that directly involved in some aspect of the development. Floor space is defined as the sum of floor area within the building measured externally to the external wall faces at each level. Basement car parks, rooftop plant rooms, caretakers' flats etc should be included in the floor space figure.

Methane Gas: A constituent of landfill/ground gas. It is flammable and explosive at concentration between 5-15% vol/vol.

Network Management Duty. As part of the Traffic Management Act 2004 local authorities were given the legal responsibility for the Network Management Duty. The objectives of this duty must be to: Make sure that traffic flows freely on our road network, and help traffic on the road networks of other authorities to flow freely.

16 Glossary

NO₂ – Nitrogen dioxide

NO_x – Nitrogen oxides. NO_x includes both nitric oxide (NO) and nitrogen dioxide (NO₂). Most pollution sources emit NO_x primarily in the form of NO. However, this can react and convert to NO₂ in the atmosphere.

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, leading to reduced life expectancy and/or increased health problems

Open Space – All land that is predominantly undeveloped other than by buildings or structures that are ancillary to the open space use. A broad range of open space types are included – whether in public/private ownership with unrestricted/limited public access.

Ordnance Datum – (also abbreviated to 'OD') is the mean level of the sea (at Newlyn in Cornwall) from which heights above sea level are taken.

Owner: Defined in Section 78 A (9) of the Environmental Protection Act 1990 as

"a person (other than a mortgagee not in possession) who, whether in his own right or a trustee for any other person, is entitled to receive the rack rent of the land, or where the land is not let at a rack rent, would be so entitled if it were so to let."

Passive Solar Design – This refers to the use of solar energy for the heating and lighting of buildings. Using this approach, the building itself or some part of it can take advantage of the heat/light energy provided by the sun.

Parks for the purposes of this SPD are those parks identified as metropolitan open land, district parks or local parks within Local Plan Appendix 3 – Open Space Hierarchy.

Pathway: One or more routes or means by, or through, which a receptor:

(a) is being exposed to, or affected by, a

contaminant, or

(b) could be so exposed or affected.

Permit Free. A restriction that removes the eligibility of residents within permit-free developments to have Residents' Parking Permits.

Photovoltaic (PV) Cell – Converts solar energy directly into electricity. Interconnected cells are encapsulated into a sealed module that produces a voltage.

PM10 – Fine particulate matter with a diameter of less than 10 microns.

Pollutant Linkage: The relationship between a contaminant, a pathway and a receptor.

Pollution of Controlled Waters: Defined in Section 78 A(9) of the Environmental Protection Act 1990 as:-

"the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter."

Possibility of Significant Harm: A measure of the probability, or frequency, of occurrence of circumstances, which would lead to significant, harm being caused.

Potentially contaminated land sites: Sites identified (while undertaking desk studies/site investigations) as being, or having been, subject to a land use that may give rise to contamination.

Priority habitats and species: The England Biodiversity List under section 41 of the Natural Environment and Rural Communities Act 2006 provides details of all Species and Habitats of Principal Importance.

Protected and Priority species and habitats: In the United Kingdom, legislation exists to provide protection for species and/or habitats if these are categorised as being:

a) a 'European Protected Species' as identified in the Conservation of Habitats and Species Regulations 2010, which transposes the European Union's Habitats Directive⁽²⁸⁾ into UK law; or

b) a nationally 'Protected Species' as listed in the Schedules of the Wildlife and Countryside Protection Act 1981 (as amended); or

c) a Priority Species' and/or 'Priority Habitats' as identified under section 41 of the Natural Environment and Rural Communities Act 2006 Act 2006, and/or the UK Biodiversity Action Plan (UK BAP).

28 Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

16 Glossary

Public Transport Accessibility Level (PTAL). PTAL provides a methodology for assessing the relative ease of access to a location to the public transport network. PTAL 1 is 'very poor' with PTAL 6 being 'excellent'.

Qualitative Risk Assessment: The evaluation of risk associated with potential source-pathway-receptor linkages by consideration of the hazard severity combined with the probability of occurrence expressed using non-numerical terminology (e.g. high, medium, low).

Quantitative Risk Assessment: The estimation of risk based on modelling of contaminant fate and transport and exposure assessment using site-specific criteria and expressed using numerical terminology (e.g. increased risk of 1 in 105).

Rain Garden – A planted depression that allows rainwater runoff from impermeable areas like roofs, driveways etc to be diverted from the sewer and to be used for irrigation.

Rainwater Harvesting – Collecting water from roofs via traditional guttering and through down pipes to a storage tank. It can then be used for a variety of uses such as watering gardens.

Ramsar sites: Ramsar sites are wetlands of international importance, designated under the Ramsar Convention.

Receptor: "a living organism, a group of living organisms, an ecological system or a piece of property which is being, or could be harmed, by a contaminant, or controlled waters which are being, or could be, polluted by a contaminant."

Reclaimed Material – Material re-used in its existing state, without need for processing or energy intensive alteration.

Renewable and Low-Carbon Energy – Includes energy for heating and cooling as well as generating electricity. Renewable energy covers those energy flows that occur naturally and repeatedly in the environment – from the wind, the fall of water, the movement of the oceans, from the sun and also from biomass. Low-carbon technologies are those that can help reduce carbon emissions.

Renewable and/or low-carbon energy supplies include:

- biomass and energy crops;
- CHP/CCHP (and micro-CHP);
- waste heat that would otherwise be generated directly or indirectly from fossil fuel;
- energy-from-waste;

- ground/air source heating and cooling;
- hydro;
- solar thermal and photovoltaic generation; and
- wind generation

Remediation: A remediation action falling within the definition of Section 78 A (7) the

Environmental Protection Act 1990 is:

"doing any works, the carrying out of any operations or the taking of any steps in relation to any land or waters for the purpose of:-

a) preventing or minimising, or remedying or mitigating the effects of any significant harm, or any pollution of controlled waters, by reason of which the contaminated land is such land, or

b) of restoring the land or waters to their former state."

Remediation Notice: Defined in Section 78E(6) of the Environmental Protection Act 1990 as a notice specifying what appropriate person is to do by way of remediation and the periods within which he is required to do each of the things so specified. It is the mechanism by which the Local Authority or the Environment Agency can ensure that land is remediated if it poses a risk of significant harm or pollution of controlled waters.

Remediation Scheme: The complete set or sequence of remediation actions (preferable to one or more significant pollutant linkages) to be carried out with respect to the relevant land or waters.

Remediation Statement: Defined in Section 78H(7) as a statement prepared and published by the responsible person detailing the remediation actions which are being, have been, or are expected to be done as well as the periods within which these things are being done.

Residential mooring This is a long-term/mooring base for a vessel or floating structure with planning permission and navigation authority consent for use as a person's sole or main residence. The vessel may leave the mooring from time to time to go cruising, undergo repair etc. for any period of time.

Residential Parking Permits These are issued by the council to residents in parking controlled zones, to be used during controlled hours and subject to conditions as specified by the council.

Return Period – A statistical measurement denoting the average recurrence interval over an extended period of time between particular events such as storms or flooding.

16 Glossary

Risk: Is the combination of

- a) the probability, or frequency, of an occurrence of a defined hazard (for example, exposure to property of a substance with potential to cause harm); and
- b) the magnitude (including the seriousness) of the consequences.

Sensitive Use: Housing, schools, hospitals, children's play areas, nurseries, allotments, etc.

Sequential Test – In relation to flooding, the sequential test is a decision-making tool designed to ensure that sites at little or no risk of flooding are developed in preference to areas at higher risk. Within each Flood Zone, new development should be directed first to sites at the lowest probability of flooding.

Significant Harm: Any harm which is determined to be significant in accordance with the statutory guidance in Chapter A of DETR Circular 01/2006.

Site Investigation: This term is used to describe the process of carrying out investigations on land to determine whether there is contamination present. The investigation is carried out in several stages. These stage are typically a desk study to assess historical land use, intrusive investigation using trial pits and boreholes, sampling of materials, assessment of risk, and preparation of remediation proposal.

Site reconnaissance/ walkover survey: A site walkover survey to inspect the land, its use, layout and condition.

Sky Glow - the illumination of the night sky, most commonly caused by artificial light that emits light pollution

Sound Limiter - a device that monitors amplified sound and limits the maximum sound level that can be generated by sound equipment

Solar Water Heating – Solar water heating systems consist of a series of tubes inside an insulated box, typically mounted on the roof. The tubes absorb the sun's heat and transfer that heat to water or another liquid flowing through the tubes to heat water to be used in the home.

Special Areas of Conservation: Areas which have been given special protection under the European Union's Habitats Directive. They provide increased protection to a variety of wild animals, plants and habitats and are a vital part of global efforts to conserve the world's biodiversity.

Special Protection Areas: Special Protection Areas are areas which have been identified as being of international importance for the breeding, feeding, wintering or the migration of rare and vulnerable species of birds found within European Union countries. They are European designated sites, classified under the 'Birds Directive 1979' which provides enhanced protection given by the Site of Special Scientific Interest status all Special Protection Areas also hold.

Special Site: Is defined by Section 78A(3) of the Environmental Protection Act 1990 as

"any contaminated land

a) which has been designated as such by virtue of Section 78C(7) or

b) whose designation as such has been terminated by the appropriate Agency under Section 78Q(4)

The effect of the designation of contaminated land as a special site is that the Environment Agency, rather than the local Authority, becomes the enforcing Authority for the land."

Strategic Flood Risk Assessment – A study to assess the risk to an area or site from flooding, now and in the future, and to assess the impact that any changes or developments on the site or area will have on flood risk to the site and elsewhere. It may also identify, particularly at more local levels, how to manage those changes to ensure that flood risk is not increased.

Substance: Is defined in Section 78A(9) of the Environmental Protection Act 1990 as:-

"any natural or artificial substance, whether in solid or liquid form or in the form of a gas or vapour."

Supplementary Planning Document (SPD) does not form part of the statutory plan. It can take the form of design guides or area development briefs, or supplement other specific policies in the plan. However, it must be consistent with national and regional planning guidance, as well as policies set out in the adopted plan. An SPD is a material planning consideration.

Surface Water – Rainwater lying on the surface or within surface water drains/sewers.

Surface waters/ hydrology: Water present above ground associated with freshwater resources, i.e. rivers, streams and lakes. Hydrology is the study of the distribution, conservation and use of water.

Sustainable Construction – The use of design and construction methods and materials that are resource efficient and that will not compromise the health or well-being of the environment or the building occupants, builders, the general public or future generations.

Sustainable Development – Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

16 Glossary

Sustainable Drainage Systems (SuDS) – An alternative approach to the traditional ways of managing rainwater runoff from buildings and other surfaces. SuDS covers the whole range of sustainable approaches to surface drainage management. SuDS can reduce the total amount, flow and rate at which surface water runs directly to stormwater systems or to rivers and other water courses.

Swale – Grassed depressions which lead surface water overland from the drained surface to a storage or discharge system, typically using the green space of a roadside margin. Compared to a conventional ditch, a swale is shallow and relatively wide, providing temporary storage, conveyance, treatment and the possibility of infiltration under suitable conditions.

Tonal noise - a tone at one or more specific frequencies, generally more noticeable and more annoying than non-tonal noise of the same level

Transport Assessment. A transport assessment is a comprehensive review of all the potential transport impacts of a proposed development or redevelopment, with an agreed plan to mitigate any adverse consequence.

Trial Pits: Trenches dug into land to check what is below the surface and allow samples to be taken for analysis.

Transport Statement. A transport statement to support the smaller scale developments where the traffic impact is limited in both volume and area impact. It should set out the issues relating to a proposed development site (existing conditions) and details of the development proposals (proposed development).

Travel Plans. Travel Plans are aimed at helping employees to use alternatives to driving to work – for example public transport, walking and cycling. Green travel plans also address business' transport use and cover travel in the course of business. Travel plans can make a major contribution to easing congestion, especially during the peak periods.

TRAVL. A software package allowing access to a range of travel surveys carried out for developments across London

Validation: Confirmation of the likely performance of a particular remedial approach, for example supporting evidence of verified performance on other sites.

Verification: The process of demonstrating that the risk has been reduced to meet remediation criteria and objectives based on a quantitative assessment of remediation performance.

Verification Plan: A plan that sets out the requirements for gathering data to demonstrate that remediation meets the remediation objectives and criteria.

Veteran tree - A tree which, because of its great age, size or condition is of exceptional value culturally, in the landscape or for wildlife. The term veteran tree is one that is not capable of precise definition but it encompasses trees defined by three guiding Policies:

- trees of interest biologically, aesthetically or culturally because of their age;
- trees in the ancient stage of their life;
- trees that are old relative to others of the same species.

Listed below are characteristic features of veteran trees. The more the tree has, the stronger the indication that it is a veteran:

- Girth large for the tree species concerned
 - Major trunk cavities or progressive hollowing
 - Naturally forming water pools
 - Decay holes
 - Physical damage to trunk
 - Bark loss
 - Large quantity of dead wood in the canopy
 - Sap runs
 - Crevices in the bark, under branches or on the root plate sheltered from direct rainfall
 - Fungal fruiting bodies (e.g. from heart rotting species)
 - High number of interdependent wildlife species
 - Epiphytic plants
 - An 'old' look
 - High aesthetic interest
-

Volatilisation: The conversion of a chemical substance from a liquid or solid state to a gaseous or vapour state by the application of heat, by reducing pressure, or by a combination of these processes.

16 Glossary

Waste: Any substance or object which the producer or the person in possession of it discards or intends or is required to discard. (A producer is anyone whose activities produce waste or who carries out pre-processing, mixing or other operations resulting in a change in its nature or composition)

Whole Life Impacts – Assesses the impacts of a product or operation on the environment throughout its life – e.g. from production and manufacture, operational and maintenance, through to final demolition/disposal.

17 Technical Appendices

Appendix 1 - Basements and Lightwells

Appendix 1: Building Regulations Requirements for Basements

17.1 The following are regulations relating to Fire Safety and Means of Escape from Basements. There are two options available for achieving means of escape in case of fire.

17.2 Firstly, if the only means of escape in case of fire is by using the front lightwell area, then there are a number of rules which need to be met.

17.3 A lightwell with 800 mm wide and 1250 mm long (inside measurements) will be large enough to form a reasonable escape route.

17.4 A non-combustible ladder should be provided to allow anyone to step out of the lightwell to ground level. It should have a rake of 70 degrees and be positioned in such a way that 450 mm of the window or door remains clear. A handhold should be provided above ground level.

17.5 Some form of protection is needed to prevent anyone from falling into the lightwell. If this protection is provided by the use of a horizontal grille, a section of it must be capable of being opened by one hand (as someone holds onto the ladder with the other). This could be done by providing spring loading or a counterbalance. The hatch size should be the plan area of the ladder or a minimum of 800 mm x 600 mm, whichever is the greater. Bars to the grille should be spaced at no greater than 50 mm apart. The grille should be fitted only with simple fastenings clearly visible and readily openable without the use of a key.

17.6 Any new basement window should have an unobstructed opening area of no less than 0.33 m² amounting to at least 450 mm by 750 mm clear opening. The bottom of the opening area should be not more than 1100 mm above the floor.

17.7 In order to make the escape route safe from any fire breakout from any existing ground floor window, if that window is within 1.8m of the lightwell, you will need to ensure that the ground floor window sill is at least 1100 mm above ground level, or if the sill is lower than 1100 mm above ground level then glazing to the windows should be made fire resisting and fixed shut. If the latter is not practicable you should install a smoke detector in the ground floor front room which contains, or is linked to, an alarm which will provide early warning to occupants in the basement.

17.8 Secondly, where the means of escape in case of fire is by using the internal staircase, the following rules need to be met.

17.9 All doors to habitable rooms (including the kitchen), entered from the stairway of the dwelling, should be fire resisting and self closing to ensure that a protected route is provided, or

17.10 Where the existing doors to the stairway are not fire-resisting, the dwelling should be provided with a mains operated system of automatic fire detection. A detector should be provided in each habitable room (heat detector in the kitchen). Such a system should accord with the recommendations of BS 5839 Part 6.

17.11 In all the above options, the following additional recommendations (from Approved Document "B" attached to the Building Regulations) should be complied with: -

- The basement room should be separated from the stairway by fire-resisting construction, and
- Smoke detection should be provided within the stairway enclosure, at each landing level.

17 Technical Appendices

17.12 Finally, it is the responsibility of owners, builders and their professional advisers to ensure that all temporary works are carried out in accordance with health and safety (construction) regulations and good building practice. Health and safety (construction) regulations are enforced by the Health and Safety Executive.

17.13 Also, before any work commences planning permission, building regulations approval, and any necessary highways consent must be obtained where excavations are proposed adjacent to public highways (i.e. the edge of the pavement). In addition any necessary party wall notices should be served and agreement reached with the adjoining owners where the proposed works affect the party wall. If this is not done before the work begins, the adjoining owners may take legal proceedings and halt work until such time the works affecting the party walls are agreed with them.

17.14 NB. All calculations and details relating to retaining walls and underpinning works, etc. must comply with the Building Regulations to the satisfaction of the Building Control Officer.

Appendix 2 - Biodiversity

Appendix 2a – Biodiversity

Ecological Survey Seasons

Key: Optimal Survey Time: ■ Extending into: □

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Badgers		■	■	■	■	■	■	■	■	■	■	■
Bats (Hibernation Roosts)	■	■	■								■	■
Bats (Summer Roosts)				■	■	■	■	■	■	■		
Bats (Foraging/ Commuting)				■	■	■	■	■	■	■		
Birds (Breeding)			■	■	■	■	■	■				
BIRDS (Over Wintering)	■	■									■	■
Dormice	■				■	■	■	■	■		■	■
Great-Crested Newts		■	■	■	■	■	■	■	■	■		
Invertebrates				■	■	■	■	■	■			
Natterjack Toads				■	■							
Otters	■	■	■	■	■	■	■	■	■	■	■	■
Reptiles			■	■	■	■			■			
Water Voles		■	■	■	■	■	■	■	■	■		
White-Clawed Crayfish						■	■	■	■			
Habitats/Vegetation				■	■	■	■	■	■			

Table adapted from Validation of Planning Applications (Association of Local Government Ecologists, 2007)

Proposals for Development That Will Trigger a Protected and / or Priority Species Survey	Species Likely To Be Affected And For Which A Survey Will Be Required												
	Bats	Barn Owl	Breeding Birds	Wintering Birds	Gt. Crested Newt	Schedule 8 plants	Reptiles	Amphibians	Plants	Invertebrates	Harvest Mouse	Stag Beetle	BAP Species
Proposals affecting woodland or field hedgerows and/or lines of trees with connectivity to woodland or water bodies	✓		✓				✓		✓				
Proposals affecting established grassland (i.e. not ploughed or seeded for 5 or more years) or 'roughland' (i.e. grassland partially covered with scrub or trees), <i>excluding</i> residential gardens and grassland managed intensively for sports or amenity use and <i>including</i> roadside verges			✓	✓			✓		✓	✓	✓		
Proposed tree work (felling or lopping) and/or development affecting: <ul style="list-style-type: none"> • old and veteran trees that are older than 100 years; • trees with obvious holes, cracks or cavities, • trees with substantial ivy cover; • trees with a girth greater than 50cm at chest height; 	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓										
Proposals affecting gravel pits or quarries and natural cliff faces and rock outcrops with crevices or caves	✓	✓					✓						✓
Proposals within 250m* of a pond (excluding small garden ponds). Does not apply to Householder applications. Where known records for great crested newt occur this should be 500m.			✓		✓								✓
Proposals affecting or within 200m* of rivers, streams, canals, lakes or other aquatic habitats such as fenland, marshland or reedbed. Does not apply to householder applications.	✓		✓	✓	✓	✓		✓	✓		✓		

17 Technical Appendices

Proposals for Development That Will Trigger a Protected and / or Priority Species Survey	Species Likely To Be Affected And For Which A Survey Will Be Required												
	Bats	Barn Owl	Breeding Birds	Wintering Birds	Gt. Crested Newt	Schedule 8 plants	Reptiles	Amphibians	Plants	Invertebrates	Harvest Mouse	Stag Beetle	BAP Species
Proposals affecting 'derelict' land (brownfield sites), allotments and railway land.			✓	✓	✓		✓	✓		✓	✓		
Proposals affecting bare ground and/or sparsely vegetated sites, wherever they are located.			✓	✓									
Proposed Development affecting any buildings, structures, feature or locations where protected and / or priority species are known to be present .**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<p>* Distances may be amended to suit local circumstance on the advice of the Local Planning Authority or the local Natural England team or the Hammersmith and Fulham Biodiversity Partnership. ** Confirmed as present by either a data search (for instance via GIGL / local environmental records centre) or as notified to the developer by the local planning authority and/or by Natural England, the Environment Agency or other nature conservation organisation.</p>													

Appendix 2c - Biodiversity

Flowchart showing the steps developers need to take to ensure biodiversity is protected and enhanced

17 Technical Appendices

Pre-application stage

1. Identification of site for proposed development



2. Assess the biodiversity value of the site and its surroundings:

- Does the site or adjacent land have a nature conservation designation?
- Are legally protected species present?
- Are Biodiversity Action Plan (priority) species or habitats present?



3. If the development will have a negative impact on species and / or habitats present on the site, can an alternative site be found?

If an alternative site cannot be found, can the development be redesigned to avoid harm to species and habitats?

If harm cannot be avoided, you must set out how harm will be minimised and compensated for.



4. If trees are present on or adjacent to the site you will need to provide:

- A topographical survey
- A tree survey (including information on any trees protected by Tree Preservation Orders)
- A tree constraint plan

Consult the Trees and Development SPD for further information.

Application stage

5. The Local Planning Authority will consider if the information submitted by the developer is adequate and accurate. Additional information and / or surveys may be required.



6. If European protected species, such as bats or great crested newts, are present the Local Planning Authority must apply the three tests set out in the Habitats Regulations:

- No satisfactory alternative to the development
- Impacts are not detrimental to the maintenance of the population of the species at a favourable conservation status in their natural range
- The development is in the interests of public health or safety, or other imperative reasons for overriding public interest, including those of social, economic and environmental benefit.

A licence from Natural England may also be required.



7. An Arboricultural Implications Assessment and an Arboricultural Method Statement may be required for trees present on and adjacent to the site. Consult the Trees and Development SPD for further information.



8. The planning application will be determined in accordance with national legislation and this Biodiversity SPD.



9. If planning permission is granted conditions may be attached requiring further mitigation, enhancements for biodiversity, tree planting and / or compensation for unavoidable loss.

17 Technical Appendices

Post application stage

10. Where a licence from Natural England is required ensure this has been obtained before work commences.



11. Ensure that landscaping and biodiversity conditions are met. If an Ecological Management Plan is required ensure this is provided and any monitoring requirements are met.

Appendix 2d - Biodiversity

Local requirements for designated sites and priority habitats: Criteria for when a biodiversity site survey and assessment will be required.

1. Designated Sites (as shown on the LDF Policies map)

- Nature conservation areas and NI 160 sites
- Green corridors and NI 160 sites

2. Priority Habitats (Habitats of Principal Importance for Biodiversity relevant to Hammersmith and Fulham under S.41 of the NERC Act 2006)

- Floodplain grazing marsh
- Fen, marsh, swamp and reedbeds
- Lowland heathland and/or dry acid grassland
- Lowland meadows (e.g. species-rich flower meadows)
- Lowland mixed deciduous woodland (ancient woodland)
- Lowland wood-pasture and parkland
- Rivers and streams (e.g. chalk streams)
- Standing open water and canals (e.g. lakes, reservoirs, ponds, aquifer fed fluctuating water bodies)
- Wet woodland
- Traditional orchards

3. Other Biodiversity Features (as identified by the Hammersmith and Fulham Wildlife Partnership - see paragraph 84 ODPM Circular 06/2005).

The features listed below may provide habitat for priority species and may require survey.

- Secondary Woodland and Mature/Veteran Trees
- Disused tunnels (e.g. roosts for bats)
- Tree lines providing sheltered feeding habitat for bats
- Previously developed land with biodiversity interest
- Urban green space (parks, allotments, cemeteries, churchyards flower-rich)
- Road verges and railway embankments)
- Sites identified as Wildlife Corridors

17 Technical Appendices

Appendix 2f – Biodiversity

Environment Agency list of wildflower species and their ecological value, each of which is found either growing wild or cultivated in LBHF

Common Name	Latin Name	Ecological Value
Thrift	<i>Armeria maritima</i>	Standard
Clustered bellflower	<i>Campanula glomerata</i>	Standard
Harebell	<i>Campanula rotundifolia</i>	Standard
Red valerian	<i>Centranthus rubra</i>	Standard
Wild basil	<i>Clinopodium vulgare</i>	Standard
Deptford pink	<i>Dianthus armeria</i>	Standard
Maiden pink	<i>Dianthus deltoides</i>	Standard
Purple toadflax	<i>Linaria purpurea</i>	Standard
Pasque flower	<i>Pulsatilla vulgaris</i>	Standard
Meadow clary	<i>Salvia pratensis</i>	Standard
Spiked speedwell	<i>Veronica spicata</i>	Standard
Basil thyme	<i>Acinos arvensis</i>	Medium
Agrimony	<i>Agrimonia eupatoria</i>	Medium
Blue fleabane	<i>Erigeron acer</i>	Medium
Common stork's-bill	<i>Erodium cicutarium</i>	Medium
Ladies bedstraw	<i>Galium verum</i>	Medium
Common rockrose	<i>Helianthemum nummularium</i>	Medium
Field scabious	<i>Knautia arvensis</i>	Medium
Musk mallow	<i>Malva moschata</i>	Medium
Hoary plantain	<i>Plantago media</i>	Medium
Cowslip	<i>Primula veris</i>	Medium
Self-heal	<i>Prunella vulgaris</i>	Medium
Meadow buttercup	<i>Ranunculus acris</i>	Medium
Bulbous buttercup	<i>Ranunculus bulbosus</i>	Medium
Salad burnet	<i>Sanguisorba minor</i>	Medium
Small scabious	<i>Scabiosa columbaria</i>	Medium
Biting stonecrop	<i>Sedum acre</i>	Medium
White stonecrop	<i>Sedum album</i>	Medium
Reflexed stonecrop	<i>Sedum rupestre</i>	Medium
Bladder campion	<i>Silene vulgaris</i>	Medium
Wild thyme	<i>Thymus polytrichus</i>	Medium
Breckland thyme	<i>Thymus serpyllum</i>	Medium
Hare's-foot clover	<i>Trifolium arvense</i>	Medium
Hop trefoil	<i>Trifolium campestre</i>	Medium
Yarrow	<i>Achillea millefolium</i>	High
Kidney vetch	<i>Anthyllis vulneraria</i>	High
Common knapweed	<i>Centaurea nigra</i>	High
Viper's bugloss	<i>Echium vulgare</i>	High
Dove's-foot crane's-bill	<i>Geranium molle</i>	High
Fox and cubs	<i>Hieraceum aurantiacum</i>	High
Perforate St. John's-wort	<i>Hypericum perforatum</i>	High
Autumn hawbit	<i>Leontodon autumnalis</i>	High
Rough hawkbit	<i>Leontodon hispidus</i>	High
Ox-eye daisy	<i>Leucanthemum vulgare</i>	High
Common toadflax	<i>Linaria vulgaris</i>	High
Bird's-foot trefoil	<i>Lotus corniculatus</i>	High
Black medick	<i>Medicago lupulina</i>	High
Common restharrow	<i>Ononis spinosa</i>	High
Marjoram	<i>Origanum vulgare</i>	High
Fox and cubs	<i>Pilosella officinarum</i>	High
Wild mignonette	<i>Reseda lutea</i>	High
Dark mullein	<i>Verbascum nigrum</i>	High
Great mullein	<i>Verbascum thapsus</i>	High

Appendix 3 - Land Contamination

Appendix 3a: Land Contamination in LBHF

17.15 The existence of pollutant linkages is dependent upon local conditions and may be preliminary assessed by evaluating the known:-

- Potential sources determined from the current and historical use of a site and surrounding area;
- The pathways determined from local geology, surface, groundwater and built attributes of a site and surrounding area; and
- Potential receptors determined from the geology, surface and groundwater and users of the site and surrounding area

17.16 On a precautionary basis, the possibility of contamination should be assumed when considering both development plans and individual planning applications in relation to all and subject to or near to previous potentially contaminative uses and also where uses are being considered that are particularly sensitive to contamination – e.g. housing, schools, hospitals, children’s play areas, nurseries, allotments.

17.17 The presence of contamination in, on or under land does not itself, necessarily present an unacceptable risk, therefore it does not necessarily require action. Risk arises and land is considered to be adversely affected by contamination where there is a pollutant linkage; that is to say where a receptor that is to say where a receptor (i.e. Humans, controlled waters, ecological systems, property) is impacted upon by a contaminant source via a pathway (e.g. Ingestion, inhalation). A source could be natural, such as ground gases produced from the degradation of organic matter in soil, or man made, including the bi-products of industry such as heavy metals and fuel oils. The hazards may be chemical (toxic, carcinogenic), biological (pathogens), radioactive or physical (asphyxial, explosive). The sections below include examples of potentially contaminative uses (sources) as well as examples, listed by receptor, giving common pathways and effects from land contamination which should be considered. These lists are not intended to be comprehensive and all former industrial land should be regarded as potentially affected by contamination. Further details on these industrial sources are contained in the Department of the Environment Industry Profiles.

17.18 Less stringent pollution control and poor site management in the past has led to a substantial legacy of sites contaminated by former uses. While modern pollution control legislation and good practice in site management have largely reduced the impact of current industrial activity and help to prevent new contamination, a wide range of commercial and other activity has had and still would have the potential to cause contamination.

17.19 Some sites may have been investigated or remediated previously, to varying standards, but this does not preclude the need for further assessment or remediation. Guidance and standards have changed over time, and are regularly evolving. Therefore any previous investigation, assessment or remediation should be reviewed in light of current standards to determine the need for further consideration.

17.20 Potentially hazardous substances, such as methane, carbon dioxide or elevated concentrations of metallic elements may also be present in the ground due to the underlying geology. Since these may pose a risk to human health or to the environment, their presence is a material consideration. It is necessary to consider the potential for both naturally-occurring and industrial contaminants to exist.

17.21 Developers should recognise that contamination may pose problems on land other than the originating site. For example, contaminants may migrate or be transported by wind or water onto land that has no specific association with the contaminating industrial use or ground gases, such as methane or carbon dioxide, may travel onto a site through the ground. Contaminants may also be present on land where there are no specific records of contaminating uses, such as in made ground where unsuitable fill has been used.

17 Technical Appendices

17.22 Particular attention should also be paid to the condition of the site and of neighbouring land where the proposed use would be particularly vulnerable to contamination, where the current circumstances or past use suggest that contamination may be present or where it has other relevant information. Full account should be taken of whether the proposed use or development is likely to be adversely affected by contamination. For example, the addition of a new storey to an existing building is unlikely to be significantly affected by contamination whereas lateral expansion onto former industrial land potentially carries a higher risk and building extensions or undertaking landscaping that disturbs the ground may breach protecting layers and the addition or expansion of a basement may introduce new receptors into an unsuitable environment.

Historical uses

17.23 A rich history of industrial land uses and practices has resulted in the potential contamination of land within the borough. The physical development of the borough has predominantly taken place since the 1860s. Up to the late 19th century the area was largely rural with market gardening and nurseries as well as brickfield excavations and associated swampy land. The main development of the Borough coincided with the arrival of the railways (Metropolitan, District, Central and Piccadilly lines) between 1864 and 1906. Industrial development was focused along the River Thames, the Grand Union Canal and the railways. Since the War and largely since the 1980s, the riverside has gradually undergone (from Fulham Reach towards Hammersmith) transformation from industrial uses and working wharves to private residential and office buildings.

17.24 A number of industrial uses, past and present, are known to have existed across the borough. Some of these uses are outlined in the list of potentially contaminating uses in the Technical Details section and further information on the contaminants associated with these uses may be found in the Department of the Environment (DOE) Industry Profiles.

Surface water

17.25 Surface water features in the borough are the River Thames, Chelsea Creek & the culverted Counter's Creek (runs along boundary with RBK&C) and Stamford Brook (runs along western edge of the borough, though the outlet has been covered since 1936). The Grand Union canal runs along the north-west of the borough, and there are several man-made ponds (e.g. in Ravenscourt Park, Bishop's Park), though these features are not likely to be in hydrological continuity with other water bodies.

Geology and Groundwater

17.26 The solid geology for the whole borough comprises chalk overlain by London Clay. The principal body of groundwater (the principal aquifer) is located in the chalk and is relatively protected by the thick impermeable band of clay (non-aquifer) above. Drift deposits overlying the clay generally comprise:

17.27 River Terrace Deposits (Kempton Park gravels) in the southern area of the borough (northern border approximately Uxbridge Road) - classified as a secondary aquifer; and

17.28 River Brickearths (Langley Silt) between Goldhawk Road and the southern boundary of Wormwood Scrubs – classified as a non-aquifer, though a secondary aquifer (comprising the River Terrace Deposits) may lie beneath.

17.29 Drift deposits are minimal northwards of Wormwood Scrubs. It should be noted that significant areas of the natural geology within the borough have undergone excavation and subsequent infilling with made ground material. Where the relatively impermeable Brickearth layer has been removed or compromised, a pathway to the underlying secondary aquifer may be created.

17.30 Investigations across the borough have noted that made ground material, often of significant (i.e. greater than 1m) thickness, is present above the River Terrace Deposits in areas not previously known to have been excavated.

Ground gas and Vapours

17.31 Ground gas can be generated by the natural lithology within the borough, putrescible constituents of made ground and the degradation of contaminants in soils and/or groundwater. Ground gases of concern typically comprise carbon dioxide (an asphyxiant) and methane (explosive), though in some cases further gases such as hydrogen sulphide or carbon monoxide may be present.

17.32 There have been several unexpected pockets of organic solvents found in the borough, principally Perchloroethene and Trichloroethene, both commonly used for dry cleaning and degreasing metals prior to other treatment. These can release toxic vapours and be transported in groundwater into sites where there has been no historic use of the solvents.

Ecology

17.33 There are not currently any statutorily protected nature sites in the borough, however there are a number of non-statutory sites of importance. Open space, which accounts for approximately 17% of the borough, may constitute a sensitive land use forming pathways to receptors: humans, animals, ecological systems and crops. Open spaces in the borough include parks, nature conservation areas and allotments. It should be noted that some of these open space areas were formed on land where wide scale bombing occurred in the borough during World War II (e.g. Normand Park).

Appendix 3b: Examples of Pathways and Effects from Land Contamination

Human Health

- Uptake of contaminants by food plants grown in contaminated soil – heavy metals (e.g. cadmium, lead) and persistent organic pollutants including certain pesticides and veterinary products may result in an accumulation in food plants to concentrations where they exceed legal limits and/or may pose a hazard to human health. Uptake will depend on concentration in soil, its chemical form, soil pH, plant species and prominence in diet.
- Ingestion and inhalation – substances may be ingested directly by young children playing on contaminated soil, by eating plants which have absorbed metals or are contaminated with soil or dust. Ingestion may also occur via contaminated water supplies. Metals, some organic materials and radioactive substances may be inhaled from dusts and soils.
- Skin contact – soil containing tars, oils and corrosive substances may cause irritation to the skin through direct contact. Some substances (e.g. phenols) may be absorbed into the body through the skin or through cuts and abrasions.
- Irradiation – As well as being inhaled and absorbed through the skin, radioactive materials emitting gamma rays can cause a radiation response at a distance from the material itself.
- Fire and explosion – materials such as coal, coke particles, oil, tar, pitch, rubber, plastic and domestic waste are all combustible. If heated by contact with buried power cables or careless disposal of hot ashes they may ignite and burn underground. Both underground fires and biodegradation of organic materials may produce toxic or flammable gases. Methane and other gases may explode if allowed to accumulate in confined spaces.

Buildings

- Fire and explosion – underground fires may cause ground subsidence and cause structural damage to buildings. Accumulations of flammable gases in confined space leads to a risk of explosion. Underground fires may damage building services.
- Chemical attack on building materials and services – sulphates may attack concrete structures. Acids, oils and tarry substances may accelerate corrosion of metals or attack plastics, rubber and

17 Technical Appendices

other polymeric materials used in pipework and service conduits or as jointing seals and protective coatings to concrete and metals.

- Physical – blast-furnace and steel-making slag (and some natural materials) may expand if ground conditions are changed by development. Degradation of fills may cause settlement and voids in buried tanks and drums may collapse as corrosion occurs or under loading from construction traffic.

Natural Environment

- Phytotoxicity (prevention/inhibition of plant growth) – some metals essential for plant growth at low levels are phytotoxic at higher concentrations. Methane and other gases may give rise to phytotoxic effects by depleting the oxygen content in the root zone.
- Contamination of water resources – soil has a limited capacity to absorb, degrade or attenuate the effects of pollutants. When this is exceeded, polluting substances may enter into surface and groundwater.
- Ecotoxicological effects – contaminants in soil may affect microbial, animal and plant populations. Ecosystems or individual species on the site, in surface waters or areas affected by migration from the site may be affected.

Appendix 3c: Examples of Potentially Contaminating Uses of Land

17.34 A number of industrial uses, past and present, are known to have existed across the borough. Some of these uses are outlined in list below; further information on the contaminants associated with these uses may be found in the Department of the Environment (DOE) Industry Profiles (<https://www.clare.co.uk/useful-government-legislation-and-guidance-by-country/198-doe-industry-profiles>).

- Smelters, foundries, steel works, metal processing & finishing works
- Heavy engineering & engineering works, e.g. car manufacture, shipbuilding
- Military/defence related activities
- Electrical & electronic equipment manufacture & repair
- Gasworks, coal carbonisation plants, power stations
- Oil refineries, petroleum storage & distribution sites
- Manufacture & use of asbestos, cement, lime & gypsum
- Manufacture of organic & inorganic chemicals, including pesticides, acids/alkalis, pharmaceuticals, solvents, paints, detergents and cosmetics
- Rubber industry, including tyre manufacture
- Munitions & explosives production, testing & storage sites
- Glass making & ceramics manufacture
- Textile industry, including tanning & dyestuffs
- Paper & pulp manufacture, printing works & photographic processing
- Timber treatment
- Food processing industry & catering establishments
- Railway depots, dockyards (including filled dock basins), garages, road haulage depots, airports
- Landfill, storage & incineration of waste
- Sewage works, farms, stables & kennels
- Abattoirs, animal waste processing & burial of diseased livestock
- Scrap yards
- Dry cleaning premises
- All types of laboratories

Other uses & types of land that might be contaminated include:

- Radioactive substances used in industrial activities not mentioned above – e.g. gas mantle production, luminising works

- Burial sites & graveyards
- Agriculture – excessive use or spills of pesticides, herbicides, fungicides, sewage sludge & farm waste disposal
- Naturally-occurring elevated concentrations of metals and other substances

17.35 Methane & carbon dioxide production & emissions from natural and made ground

Appendix 3d- Planning Application Submission

17.36 All LPA's in England are now required to use the 1-App planning application. Included within this application is an Existing Use section which requires the applicant to make a statement regarding the potential for land affected by contamination to exist at the subject site.

17.37 The existing use section is shown below in Figure 1 and details for completing this section follow:

15. Existing Use

Please describe the current use of the site:

Is the site currently vacant? Yes No

If Yes, please describe the last use of the site:

When did this use end (if known)?
DD/MM/YYYY
 (date where known may be approximate)

Does the proposal involve any of the following:

Land which is known to be contaminated? Yes No

Land where contamination is suspected for all or part of the site? Yes No

A proposed use that would be particularly vulnerable to the presence of contamination? Yes No

If you have answered Yes to any of the above, you will need to submit an appropriate contamination assessment.

17.38 Figure 1 Extract from Planning Application Form

- Land which is known to be contaminated? – This includes any development on land which is known to be affected by contamination.

17 Technical Appendices

- Land where contamination is suspected for all or part of the site? – This includes development on or near to land which has had a previous contaminative use, but where it is not known whether the land is affected by contamination. It is suggested that the council's specialist team responsible for contaminated land are contacted and an environmental search is commissioned which will provide the applicant with information held by the council regarding the potential for contamination to exist.
- A proposed use that would be particularly vulnerable to the presence of contamination? – This is any use that may be sensitive to the presence of contamination. It should be noted that contamination is not restricted to previously developed land and may occur on Greenfield sites.
- If the answer is 'Yes,' to any of these questions, Phase 1 Preliminary Risk Assessment (as detailed in the submission details section of this document) should be submitted with the planning application. (NB: A factual report ordered over the internet is not a Phase 1 report as required under the planning regime). The council's specialist officers dealing with contaminated land should be contacted as early in the process as possible, ideally when considering the acquisition of a site or during the initial steps of the design. Where the council considers there to be a high risk from land potentially affected by contamination at the site, further working including intrusive investigation, risk assessment and remediation may be required at the application stage.

Appendix 3e: Contaminated Land Assessment Requirements (phases 1-6)

Reports	Actions
Phase 1 Preliminary	Step 1
	Consult Local Authority on specific requirements
	Step 2
	Appoint Environmental Consultant to undertake steps 3, 5 of Phase 1 and Phases 2, 3 and 4
Phase 2 Site Investigation Scheme	Step 3
	Compile relevant Preliminary Risk Assessment / Desk study and conceptual site model information and produce a Report
	Step 4
Phase 3 Site Investigation	Submit Step 3 Report to the Local Authority with the planning application or towards the satisfaction of a planning condition for approval
	Step 5
Phase 3 Site Investigation	After the Local Authority has accepted the Step 4 submission and when a potential risk has been identified, produce a Site Investigation Scheme based on its findings and submit to the Local Authority for approval
	Step 6
Phase 3 Site Investigation	Implement site investigation once approval of the scheme in Step 5 is granted by the Local Authority
	Step 7

Technical Appendices 17

	<p>Undertake a Risk Assessment of the results from the site investigation by comparison to appropriate criteria and determine whether there are any unacceptable risks.</p>
	<p>Step 8</p> <p>Submit a report detailing the findings of the Site Investigation and the Risk Assessment described in Step 7 for approval by the Local Authority</p>
<p>Phase 4</p> <p>Remediation</p>	<p>Step 9</p> <p>After the Local Authority has accepted the Step 8 report and where an unacceptable risk has been identified, identify and evaluate options for remediation</p>
	<p>Step 10</p> <p>Submit a Remediation Strategy to the Local Authority for approval</p>
<p>Phase 5</p> <p>Verification</p>	<p>Step 11</p> <p>After the Local Authority has accepted the Remediation Strategy, implement the remediation</p>
	<p>Step 12</p> <p>Undertake verification of the remediation being undertaken</p>
	<p>Step 13</p> <p>Submit a Verification Report including all information obtained in Step 11 and Step 12 for approval</p>
<p>Phase 6</p> <p>Long Term Monitoring</p>	<p>Step 14</p> <p>If required as identified in Phases 3,4 or otherwise, a Long Term Monitoring Plan should be submitted to the Local Authority for approval</p>

Phase 1: Preliminary Risk Assessment/Desktop Study

- Purpose and aims;
- Credentials of the person/organisation undertaking the study
- Details of the client; site location and current layout plans (appropriately scaled and annotated, including the National Grid Reference;
- A Site reconnaissance;
- Desktop study to include:
 - Appraisal of the site history based on period maps/aerial photographs (scaled and annotated);
 - Assessment of the environmental setting including interpretation and implications of:

17 Technical Appendices

- geology, hydrogeology & hydrology of the area information from the Local Authority regarding the potential for contaminated land at the site
- information from the Environment Agency on water abstractions, pollution incidents, surface water quality, IPPC authorisations and landfill sites within 250m.
- ecological issues.
- Any archaeological considerations.
- Appraisal of the site reconnaissance.
- Assessment of current/proposed site use and surrounding areas;
- Review of any previous site contamination studies (desk based or intrusive, or IPPC investigations where relevant) and remediation works;
- Review of local authorities planning and building control records, drainage and utilities plans.
- Preliminary qualitative risk assessment to include:
 - initial conceptual model of the site showing the nature and extent of the potential/identified contamination sources in relation to receptors and pathways
 - appraisal of the potential sources, pathways and receptors (pollutant linkages);
 - identification of pollutants associated with potential sources and any potential areas of concern.
- Recommendations for an intrusive investigation to include the identification of the areas most likely to be contaminated, exploratory grid, number and depth of exploratory locations, ground water/gas/vapour monitoring wells with proposed installation specifications, list of the most probable contaminants, sampling protocol and on site/off site testing requirements e.g. methods, LODs.

Phase 2: Site Investigation Scheme

- Liaison with the council's specialist officers dealing with contaminated land;
- Review of any previous site investigation contamination studies (desk-based or intrusive or IPPC investigations where relevant) and remediation works;
- Site investigation scope to assess all potential pollutant linkages identified by the preliminary risk assessment and to include:
 - scaled and annotated maps showing exploration locations, on site structures, storage tanks/facilities, power and water mains, sewage, interceptors, soakaways and other service infrastructure etc.;
 - justification of sampling regime and exploration locations, including the sampling grid, number of samples taken and their depths;
 - sampling and analytical strategies and rationale – must be relevant to the pollutant linkages identified in the preliminary risk assessment;
 - indicative instruments to be used during investigation such as PID, oil/water interface probe, etc.
 - sampling, storage, transportation protocols and analytical procedures;
 - borehole/trial pit logs;
 - ground water/gas and soil vapour monitoring well design, placement and frequency/period of sampling;
 - representative waste acceptance criteria analysis on soils earmarked for removal

17.39 Analysis of samples to be carried out by a UKAS accredited laboratory using MCERTS certified testing methods QA/QC where they exist and must include:

- all contaminants likely to be on site and

- where relevant, the identification of different species and distinction between varying carbon chain lengths etc., for example Polyaromatic Hydrocarbons (PAHs), Total Petroleum Hydrocarbons (TPHs), Volatile Organic Contaminants (VOCs).
- Off-site testing and choice of methods and LODs

Phase 3: Site Investigation and Quantitative Risk Assessment

17.40 Results and findings to include:

- where appropriate, details and justification of any changes from the original site investigation scheme;
- ground conditions with a detailed description of soil and groundwater regimes including details of their interaction, the strata encountered, any signs of contamination or unusual appearance of deposits, the presence of asbestos, and the potential for mobility and leachability;
- testing results from a UKAS accredited laboratory carried out by MCERTS certified testing methods and QA/QC procedures.
- 2-D contour maps or 3-D models/cross sections showing distribution of contaminants of concern in the unsaturated and saturated zones.
- discussion of soil/groundwater/surface water contamination – visual, olfactory and analytical. Comparison of analytical results with appropriate standards is essential;
- discussion of ground gas monitoring and determination of gassing regime
- statistical appraisal of the testing data providing representative concentrations values for chemicals of concern within averaging areas and discussing uncertainties relating to their determinations.
- Tier 1 quantitative risk assessment: comparison of the representative values of chemicals' concentrations with appropriate generic soil guidelines
- Considerations of the GW pollution, presence of ground gases/vapours.

17.41 If the generic soil guideline values are exceeded, a site specific quantitative risk assessment may be required. This should assess the potential risk to human health and/or environmental receptors and include:

- justified/referenced and well documented input parameters
- sensitivity analysis for input parameters; and
- inclusion of raw output data/model printouts as part of the report

17.42 Provide a revised conceptual site model on the basis of the investigation and quantitative risk assessment.

- Provide recommendations for further investigations where potential pollutant linkages remain.
- Recommendations for remediation – these must be appropriate for the 'suitable for use' approach, based on current use and circumstances of the land and its proposed new use;
- Recommendations for soil re-use or disposal.

Phase 4: Remediation Strategy

Objectives, aims, timetable:-

17.43 Options appraisal and the choice of remedial train including an assessment of any by-products of using the chosen remedial technique and justification of chosen method (Sustainability and Integrated Environmental Considerations, as outlined in Section 5 of this document should be considered and implemented when possible).

17.44 The method to include:

- pollutant linkages to be broken (as identified by the site investigation and risk assessment);

17 Technical Appendices

- description of the ground conditions and regimes (soil/gas/surface water and groundwater etc);
- physio-chemical properties of contaminants and their spatial distribution, mobility, bioavailability, toxicity;
- remediation methodology;
- remedial targets, their derivation and justification;
- detailed specification of gas abatement measures (i.e. membrane, sealing at service points, etc.);
- site plans and cross-sections scaled and annotated;
- phasing of works and approximate timescales;
- consents and licenses (e.g. discharge consents, part B authorisations for mobile plant, asbestos waste removal licences etc)
- details of environmental monitoring that will be undertaken;
- site management measures to protect neighbours, environment and amenity during works, including where appropriate:
 - health and safety procedures;
 - dust, noise and odour controls and
 - control of surface run off;

17.45 Details required to verify the remediation objectives will be met, including:

- frequency of sampling, storage, dispatching, analytical protocols;
- on site visual/olfactory observations, logging, photographing;
- chemical analysis;
- proposed clean-up standards;
- soil re-use or importation analytical regime;
- soil removal documentation demonstrating duty of care;
- verification/certification of gas abatement measures placement;
- reporting.
- Details on the lifespan of the recommended remediation works.
- Contingency plan for the discovery of contamination not previously identified at the site

Details of future monitoring requirements (where necessary) once remediation has been completed. Where an agreed remediation scheme includes future monitoring and maintenance schemes, arrangements will need to be made to ensure that any subsequent owner is fully aware of this requirement and assumes ongoing responsibilities that run with the land

NB. During the remediation works, if changes to the strategy have to be made, you must agree these with the Local Planning Authority, in writing, before they are implemented.

Phase 5: Completion and Verification

- Details and justification of any changes from the original remediation strategy (including details of previously unidentified contamination);
- Details and credentials of the appropriate person certifying the report;

17.46 Details of remediation works carried out at the site including::

- chemical laboratory and in-situ/on site test results;
- monitoring of groundwater and gases during remediation and details of monitoring programme post completion of remedial works, where agreed.
- summary data plots and tables relating to the remedial targets achieved or otherwise;
- plans, cross-sections, 2D-3D computer generated models of the site, contour maps showing the residual distribution of the contaminants in soil and groundwater;
- plans showing treatment areas and details of any differences from the original remediation strategy;

- waste management documentation including waste transfer notes showing the class of waste material, any waste treatment, destinations, volumes and hauliers;
- if there has been a capping layer of imported soil installed on the site or part of it, then the following information will be required:
 - a brief history of land use of the site that soil has originated from which should be
 - supplemented by site maps and chemical testing results of the soil imported.
 - chemical testing results of the installed soils.
 - details of testing should be approved beforehand by the Council.

17.47 where gas/vapour abatement measures have been installed, the following information will be required:

- details and justification of any deviation from agreed abatement scheme
- confirmation that the system approved by the Local Planning Authority as per has been implemented;
- photographs;
- certification of implementation;
- details and credentials of the appropriate, independent, person certifying implementation.

17.48 Recommendations on any further long-term monitoring/risk management work needed. Where further long-term monitoring is required the reader should refer back to phase 3.

17.49 Confirmation that remediation objectives have been met, for example, a certificate of completion.

Appendix 4 - Noise and Environmental Pollution

Appendix 4a: Noise and Vibration Survey and Report

Where a noise and or vibration survey and assessment report is required at pre-application stage or by condition, this must be carried out by a qualified and competent acoustic consultant such as a member of the Institute of Acoustics (IOA). The applicant should provide the chosen consultant with the details of the Council’s requirements contained within this SPD so that they can respond accordingly with appropriate noise and/or vibration assessments and report.

IOA contact details and information: Tel. 01727 848 195
Email: ioa@ioa.org.uk
Web site: www.ioa.org.uk
The Association of Noise Consultants web site is www.association-of-noise-consultants.co.uk

Noise reports should contain the following information, as applicable:

- details of measurement methodology, calculations and predictions;
- plans and photographs of noise measurement positions showing the distance and spatial relationship between source and receiver;
- times and time periods of measurements;

17 Technical Appendices

- weather and wind conditions at time of measurements outside;
- results of noise surveys and conclusion;
- recommendations for mitigation works and specifications where appropriate;
- Architects drawings of the proposed external plant or equipment to include details of any required acoustic enclosures and acoustic screens, showing the location, size, distance and visual impact of such installations on the host building. This is especially important at historical buildings or buildings situated in conservation areas.

- Monitoring points:

for external noise, the noise limit will normally be chosen to protect the nearest noise-sensitive premises and the best position for the monitoring point(s) will usually be outside the noise sensitive premises. In situations where extraneous noise makes monitoring difficult and is likely to give an unrepresentative result, an alternative position without such interference should be chosen. The noise level at the alternative monitoring point should be a reliable indicator of the level at the building or area to be protected from the specific source under consideration.

- Meteorological conditions:

details of wind speed, direction and temperature gradient should be noted. Measurements or predictions should be made under reasonably stable conditions. A suitable condition is a light wind with a vector component up to 2m/s from source to receiver; this will increase the noise level by about 2 dB(A) compared with a no wind case.

- Please see criteria for assessment of different types of developments in the following appendices:

- Transport noise affecting noise sensitive premises
- Building vibration
- Sound insulation and outdoor amenity criteria
- Industrial noise and vibration
- Noise from non-residential uses
- Construction and demolition

Further information about noise surveys and reports for specific applications may be sought from the Environmental Health Department on tel. 0208 753 3376 or email environmentalprotection@lbhf.gov.uk

Appendix 4b: Transport Noise and Vibration affecting Noise Sensitive Premises

Transport Noise

Where an Environmental Impact Assessment is required, the likely effects of noise will be one of the considerations to be dealt with in the environmental statement prepared by the developer.

Where residential developments are proposed in an area where they are exposed to dominant transport or mixed transport/ industrial noise sources, a detailed assessment of the transport noise should be carried out

Table 1 below lists noise levels for various transport sources during day and night time periods. Where a noise assessment shows that transport noise levels exceed those levels, details should also be provided of noise mitigation measures that will protect internal ambient noise levels as well as external private amenity space such as gardens and balconies, to the design criteria specified in Table 4 and paragraph 7.7.3.2 of BS 8233 or successive legislation, policy, standard or guidance.

Table 1

road traffic	dBA Leq(T)
07.00 - 23.00	63
23.00 - 07.00	57
rail traffic	dBA Leq(T)
07.00 - 23.00	66
23.00 - 07.00	59
air traffic	dBA Leq(T)
07.00 - 23.00	66
23.00 - 07.00	57
mixed sources	dBA Leq(T)
07.00 - 23.00	63
23.00 - 07.00	57

Mixed sources may include different types of transport such as road vehicles, rail and aircraft noise as well as non-dominant industrial noise.

The measured noise levels used for the assessment should represent the typically noisiest periods of the week, during daytime between 07:00-23:00 and night time 23:00 to 07:00, at the position of the proposed dwelling facade.

BS 7445-1:2003 defines and prescribes best practice during the recording and reporting of environmental noise. It is inherently applied in all instances when making environmental noise measurements, unless amended or superseded by later policy or standards which should then be followed.

17 Technical Appendices

The number and noise level of individual noise events should be indicated in a noise report for assessment of the suitability of development where multiple events of 45dB Lmax or more (slow time weighting) occur within habitable rooms within any one hour

A reduction of 13 dB(A) from the façade level may be assumed as the noise attenuation provided by a partially open window.

Noise levels should normally be determined at a height of 1.2m to 1.5m above ground level at the position of the proposed dwelling, 1m from the facade. Noise levels at upper or lower floor levels should also be established if significant differences in noise exposure are anticipated at different floor levels. Measured façade levels should be assumed to be 3dB(A) higher than levels measured away from any buildings at free field position.

In areas of high noise levels, applicants must demonstrate not only sound insulation to the recommended design standards of BS8233 or successive legislation, policy, standard or guidance (see Appendix C), but also appropriate room layout and orientation of habitable rooms on quieter facades away from major noise sources, together with details of silenced mechanical ventilation or whole-house system, the air-intake being at the cleanest aspect of building.

Where traffic figures or predictions are required in accordance with “Calculation of Road Traffic Noise”, DOT and Welsh Office, 1988, the Highway authority should be consulted on the traffic flow data.

Vibration

Any site affected by vibration will require an assessment of the impacts of vibration levels. Vibration acceleration (m/sec^2_{rms}) shall be measured on the foundations, ground beams or pile caps if possible, in each of the three orthogonal directions x, y and z, as necessary.

The Vibration Dose Values (VDV) should be calculated and assessed from the measured acceleration levels in accordance with BS 6472-1:2008 or successive policy or standard. For residential and other noise sensitive development, the VDV ($m/s^{1.75}$) should not exceed the levels in Table 2, which indicate low probability of adverse comment.

VDV levels ($m/sec^{1.75}$) with Low Probability of Adverse Comment:

Table 2

07:00 – 23:00	23:00 to 07:00
16 hours, day	8 hours, night
0.2 to 0.4 0	0.13

Measurements of vibration should normally be taken on a building structural surface. In some circumstances, measurements may have to be made outside the structure or on some surface other than points of entry to the human subject. In such situations, the relevant multiplying factor should be used.

Amplification of vertical vibration magnitudes needs to be considered where resonance occurs in certain floor constructions, eg. suspended floors.

Where VDV's exceed those of Table 2, proposals shall be submitted to demonstrate that vibration can be mitigated to acceptable levels.

Building vibration within existing buildings or sites should normally be measured in acceleration terms (VDV) or corrected to derive the VDV. However, in some cases, such as impulsive events (eg. blasting or pile driving), measurement of peak particle velocity PPV is appropriate so that peak values may be identified.

To protect occupants, users and building structures from harm and damage, the following levels of vibration from all sources during demolition and construction are not to be exceeded:

3mm/s PPV (mm/sec for residential accommodation, listed buildings, offices and those properties in a poor state of repair

5mm/s PPV for non-vibration-sensitive buildings.

More stringent criteria may be necessary for commercial premises that are vibration sensitive such as hospitals, photographic studios and educational premises.

Potential vibration and re-radiated noise caused by trains running in tunnels will need to be considered and relevant assessments made.

Re-radiated vibration noise within habitable residential rooms, as a result of vibration from adjacent railways and other sources, should not exceed 35dB LAmax(s). Where it is predicted that noise from this source is likely to exceed 35dB LAmax(s), proposals to mitigate re-radiated noise to acceptable levels shall be submitted for the Council's approval. However, due to the high cost of mitigating vibration effects, this should be subject to early discussion with the Environmental Protection team. Please contact the team on tel. 020 8753 3376 or email environmentalprotection@lbhf.gov.uk

The content of a vibration assessment report shall follow the format suggested in Annex A (informative) of BS 6472-1:2008 (Guide to Evaluation of human exposure in buildings) (1Hz to 80Hz) or adopted successive policy or guidance.

17 Technical Appendices

Appendix 4c: Noise Sensitive Premises – Indoor and Outdoor Noise Standards and Sound Insulation

Residential development

17.50 BS8233:2014 Code of Practice - Sound insulation and noise reduction for buildings, gives guidance on control of noise in and around buildings and suggests limits intended to guide the design of new buildings and those proposed for a change of use. Hammersmith & Fulham Council require the internal ambient noise levels for habitable rooms and gardens or balconies in terms of the overall level LAeq as indicated in Table 3 below of BS8233:2014 are met.

Table 3. Internal ambient noise levels for dwellings

Bedrooms	30 dB LAeq,T (23:00 - 07:00) 35 db LAeq, T (07:00 - 23:00)
Living rooms	35 dB LAeq,T (7:00 - 23:00)
Dining Rooms	40 db LAeq, T (07:00 - 23:00)
Gardens and other external amenity areas (balconies etc)	50 dB LAeq,T (an upper limit of 50 db LAeq, T may be acceptable in noisier environments).

Ideally, the internal levels should be achieved with windows open. However, on some sites exposed to high levels of traffic noise, windows would need to be acoustically glazed and tightly closed at least for some of the time. Alternative means of ventilation would be required.

Room layout and stacking:

In designing new dwellings and conversions, serious consideration must be given to appropriate room arrangements and stacking of separate adjoining dwellings, ensuring that:-

- large family units are not situated above smaller units,
- similar types in neighbouring dwellings are stacked above each other or adjoin each other, bedroom over bedroom, living room over living room, etc.
- halls are used as buffer zones between noise sensitive rooms of one dwelling and living areas of the adjoining dwelling and communal areas incl. main entrances, staircases, lift shafts, service areas, etc.

Building Regulations 2003 Part E describes the method for testing of airborne noise between rooms and across facades and impact sound insulation of floors. It sets the minimum acceptable levels of airborne sound insulation $D_{nT,w} + C_{tr}$ and impact sound insulation $L'_{nT,w}$ for new dwellings and conversions.

See also: - BS EN ISO 140:1998 - standard for sound insulation testing measurements

BS EN ISO 717 - standard for the calculation from those measurements or successive legislation, policy, standard or guidance.

Enhanced sound insulation between residential dwellings:

It is important to note that Part E of the Building Regulations lists the minimum acceptable levels only. The council will require better sound insulation of adjoining walls, floors and ceilings separating dwellings. Applicants and developers should aim for an enhancement of the minimum levels stated in the Building Regulations by at least 5dB.

Sound Control for Homes 1993, BRE and CIRIA, provides practical advice on sound insulation and control within dwellings of noise from outside sources and noise transmitted within and between dwellings. The sound insulation of building elements such as windows is measured in a laboratory. Good fitting of windows is essential to maintain the laboratory tested insulation value.

Residential / non-residential separation:

Building Regulation minimum values of $D_{nT,w+Ctr}$ for walls and glazing, floors and ceilings, as appropriate, should be significantly enhanced by at least 10-15dB where commercial/ sports/ entertainment and similar non-residential development is intended in the same or attached building or in close proximity to noise sensitive premises. Applications for developments where residential and commercial units adjoin each other should be accompanied by a sound insulation assessment and details of the sound reduction achieved by the proposed separating structures.

Sound insulation assessment

Assessment details of the sound insulation performance and sound reduction achieved by relevant floors, ceilings and/or walls should be submitted, in accordance with above mentioned or successive legislation, policy standard or guidance, together with construction/ installation details of any proposed sound insulation system and structure, in accordance with manufacturers' recommendations.

Mechanical Ventilation

Where mechanical ventilation is required in developments exposed to high noise levels, details should be submitted for the Council's approval, of adequate silencing of the ventilation system, outside and inside. Consideration should also be given to through-the-wall or window passive vents, acoustically lined where necessary and whole building passive stack or mechanical systems. Windows must be openable to allow natural ventilation when desired even in noisy areas. All schemes for ventilation shall comply with Document F1 'Ventilation' The Building Regulations 2000 and BS4142:1997 or successive legislation, policy, standard or guidance.

Amenity areas

Details of environmental noise affecting residential outdoor amenity space where this is provided should be included in a noise survey report. In outdoor amenity areas such as gardens and balconies, the steady noise level should not exceed 50dB_LA_{eq} (16hour, 0700 – 2300), with 55dB_LA_{eq} (16hour) being the upper limit. In order to achieve this noise limit, consideration should be given to carefully siting amenity areas away from noise-exposed facades and/or the provision of acoustic screening.

Non- residential development

Noise levels for reasonable resting/sleeping conditions in developments other than residential dwellings, such as hotels, hospitals, and residential homes should be similar to those for dwellings.

Noise affecting non-residential developments should be mitigated where necessary to achieve the standards recommended by BS8233:2014 or successive legislation, policy, standard or guidance or other more specific documentation that applies to the development.

Acoustic requirements for indoor noise levels for all occupied spaces in schools are currently covered by DfES Building Bulletin 93 "Acoustic Design of Schools" 2003. If superseded, successive legislation, policy, standard or guidance should be adhered to.

17 Technical Appendices

Appendix 4d: Industrial Noise and Vibration Sources / Plant, Machinery, Equipment

BS 4142:2014 Method for rating industrial noise affecting mixed residential and industrial areas.

Noise measurements of externally located machinery or equipment should be carried out at the nearest and/or most affected noise sensitive façade or garden, as appropriate, with all machinery operating together, as intended, at maximum capacity. An assessment of the noise or potential noise should be made by measurement and calculation, in accordance with the procedure outlined in BS4142:2014 or successive legislation, policy, standard or guidance. Such a survey should establish ambient, background and specific noise and rating levels.

A detailed noise report should be submitted for approval by the council (please see Appendix 1). Details shall demonstrate that the combined external noise level at maximum capacity, emitted by plant, machinery or equipment, will be at least 10dBA lower than the typically lowest existing representative background noise level LA90 (1 hour daytime (7am-7pm), 15mins evening (7pm-11pm) and night (11pm-7am)). For tonal noise, a +5dB feature corrections should be added as set out in Paragraph 9.2 of BS 4142:2014. It should be recognised that the planning system is a proactive means of controlling the increase in ambient background noise within the Borough and these requirements will assist in these aim within the NPSE to "where possible contribute to the improvement of health and quality of life" and to the NPPF aim to "identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason".

Where noise sources exceed the Council's noise limit, details of mitigation measures will be required, such as the installation of silencers, screening, enclosures, anti-vibration isolators, relocation of the offending noise source or replacement with quieter alternatives.

Where appropriate, the council may require a post installation noise assessment and regular servicing of plant, machinery or equipment in accordance with manufacturer's instructions or as necessary, depending on the extent of use, to ensure that compliance with the noise limit requirement is maintained.

Where a predictive assessment indicates that complaints from prospective occupiers of residential or other noise sensitive premises would be likely as a result of noise from existing industrial/ commercial noise sources, the application is likely to be refused. The applicant would need to demonstrate that they are in negotiation with the owners of the industrial/commercial facilities to control and reduce noise sufficiently to ensure that complaints will be unlikely. However, the Council cannot impose conditions outside the application site.

Appendix 4e: Noise from Non-Residential Uses such as pubs, clubs, bars, restaurants, take-aways, places of entertainment, sports, religious, cultural, educational, leisure, retail etc. and outdoor uses

Internal noise control

To prevent breakout of noise and ensure that the amenity of occupiers of the surrounding premises is not adversely affected by noise, mitigation measures will be required where appropriate. Details should be submitted to the Council for approval, of mitigation measures that will be implemented. They may include one or more of the following or suitable alternatives:

- adequate sound insulation of the building envelope and party walls, glazing, floors and ceilings;
- acoustic lobbies;
- self closing devices to all external doors;
- sound limiter on amplification systems, with separate controls for bass and overall volume and wired into the mains electric circuit;
- all music amplifiers (incl. those for singing and speech), whether in-house, hired or otherwise brought in, routed via an effective sound limiter;
- loudspeakers fitted with anti-vibration mounts and correctly positioned and angled into the venue;
- keeping external doors and windows closed; etc.

Entertainment noise

The Institute of Acoustics' Good Practice Guide on the Control of Noise from Pubs and Clubs gives guidance on the control of the different types of noise that may arise and, in particular, recommends that, where entertainment takes place on a regular basis, music and associated sources, should not be audible inside noise-sensitive property at any time.

This recommendation has been adopted by the council which requires that amplified and instrumental music, organized singing and amplified voices are not audible at noise sensitive premises.

Health & Fitness clubs

Details of the sound reduction index of the building envelope and internal separating structures will be required to demonstrate compliance with the council's standard for sound insulation between commercial and noise sensitive premises against airborne and vibration noise from the use, especially at low frequencies including music, use of equipment, group movements/ activities, etc.

Proprietary anti-vibration mounts and/or other mitigation measures for the isolation of exercise equipment and loud speakers from the building structure will be required, where appropriate.

Music and amplified voices should not be audible at noise sensitive premises.

Outdoor uses

at non-residential sites incl. petrol station, car wash, play area, delivery route, pub garden, sports field, entertainment and cultural activities, etc.

17 Technical Appendices

Sound Barriers and Enclosures

Where sound barriers are required to minimise noise from continuous or intermittent and impact noise typically associated with the use of non-residential premises such as warehouse activities, car parks, outdoor areas at food outlets, shops, entertainment premises, sports and play grounds, associated vehicles etc., the following points should be considered:

L_{Amax} levels should be used as the most representative measurement of impact and intermittent sounds.

Sound barriers should preferably be constructed of brickwork, concrete, earth banks etc.

Timber is liable to warp and can more easily suffer damage, as such reducing the effectiveness of the barrier and reducing the serviceable life to less than the recommended 40 years.

For sound-absorbent timber barriers, the construction should observe the following or relevant successive guidance or standards: -

HA 65/94, A Design Guide for Environmental Barriers – guidance on installation with regard to the appearance of the noise barrier in the environment.

HA 66/95, Environmental Barriers, technical requirements to build barriers for 20 years low maintenance and a 40 year operational life.

BSEN 1794 Parts 1,2 and 3 - testing of the airborne sound insulation of the proposed barrier and also sound absorptive performance where appropriate.

BS 5589: 1989 - quality and preservations of timber used in barriers.

The standards and criteria specified above can be achieved by thickness and density of panels and cover strips, eg:

Spruce - Abutting panels at least 30mm thick, with joints sealed by cover strips at least 30mm thick and extending at least 25% over adjacent panels.

Tongued and grooved panels to be not less than 35mm thick.

Douglas Fir - Abutting panels at least 22mm thick, with joints sealed by cover strips at least 22mm thick and extending at least 25% over adjacent panels.

Tongued and grooved panels to be not less than 27mm.

Acoustic enclosures for machinery and equipment should be provided with effective absorbent lining to inside surfaces and to any ventilation louvers. Details will be required of the sound reduction provided by the enclosure to achieve compliance with the Council's standard of 10dB below the lowest L₉₀ background level.

Outdoor Music etc.

The use of outdoor areas and the noise level likely to be emitted from activities, music, public address systems, generators etc. may need to be restricted in terms of times of use. In addition, proposed noise sources must be located and directed away from noise sensitive premises. The council may require noise mitigation measures such as sound barriers, enclosures and noise limiters, time limits etc. as necessary to prevent undue disturbance to the amenity of occupiers.

Deliveries and Refuse Collections

Where possible, deliveries should be carried out during weekday business hours between 08:00 -18:00 Monday to Friday. In town centres, these times may be extended to Saturday. Where Sunday deliveries are proposed, the applicant should demonstrate the need for Sunday deliveries. If permitted, times of Sunday deliveries will be restricted as appropriate, eg. to 10:00 – 16:00, to prevent undue disturbance to neighbours.

Where night time deliveries are proposed, justification for not delivering during day time should be provided, together with details of measures to minimise any noise, in accordance with current guidance. Regard should be had to: -

- Transport for London's code of practice for quieter out-of-hours deliveries
- FTA (Freight Transport Association) Guidance 'Delivering the Goods' – a toolkit for improving night-time deliveries
- or successive legislation, policy, standard or guidance

Refuse collections should, where possible, be similarly carried out during weekday daytime hours after 7am and/or in accordance with the above mentioned guidance, as appropriate.

Applications that include deliveries and commercial refuse collections, particularly where night time or Sunday deliveries are proposed, should be submitted with a Servicing and Delivery Plan. Details should include applicable environmental controls on the following points:-

- times and frequency of deliveries and collections;
- location of loading bays and service areas, away from noise sensitive premises or effective enclosure and sealing of loading bay and docking areas;
- vehicle movements, incl. forklifts;
- quiet reversing methods; preference will be given to broadband reversing alarms or alternative quiet safety methods for reversing;
- minimisation of noise in the use of cages, trolleys, pallets and forklifts;
- mitigation measures such as barriers, low noise wheels on cages, low noise surfaces on tail lift decking and delivery routes for trolleys etc, low noise stops etc;
- silent electronically operated shutters;
- charging of mobile refrigerated units on vehicles should be electric, not diesel powered and located remote from noise sensitive premises. Noise emitted from the charging of mobile refrigeration units is subject to a noise limit of at least 10dBA below the existing background noise at any time, as assessed according to the BS4142:1997 procedure (Please see Appendix 4)
- good practice working methods in and around the service yard, incl. handling of pallets and cages;
- vehicle engines should not be left running while vehicles used in conjunction with the development are stationary.
- no music nor loud voices.

17 Technical Appendices

Appendix 4f: Construction and Demolition Work

A Demolition Method Statement and Construction Management Plan will be required for substantial developments and where the site is close to other premises. Details shall include control measures for:

Dust:

Best Practicable Means (BPM) should be used in accordance with the Best Practice Guidance by the GLA 2006 for The Control of Dust and Emissions from Construction and Demolition or successive legislation, policy, standard or guidance. Details should include screening, covering and damping down of stockpiles, surfaces and dusty operations as well as wheel washing for vehicles leaving the site.

Noise and vibration:

Where possible, preparation work should be done at off-site or enclosed locations. Best Practicable Means (BPM) should be used to minimise noise and vibration, including low vibration methods and silenced equipment and machinery for piling, concrete crushing, drilling, excavating etc. in accordance with BS 5228:2009, 'Approved Code of Practice For Noise And Vibration Control On Construction And Open Sites'. This standard also gives guidance on noise monitoring for construction sites. If superseded or amended, successive legislation, policy, standard or guidance should be adhered to.

Where large scale development is proposed close to noise sensitive premises, applicants are advised to apply for consent under S.61 Control of Pollution Act 1974 (Control of Noise and Vibration at Construction Sites).

Working hours:

Construction and demolition works audible at the site boundary, including associated deliveries of materials, equipment and machinery, should only be carried out between the hours of 0800 - 1800hrs Mondays to Fridays and 0800 - 1300hrs on Saturdays and at no other time including Sundays and Bank/Public Holidays.

Neighbour liaison:

Prior to the commencement of any site works, the Environmental Protection team and all noise sensitive occupiers likely to be affected by the works should be notified in writing of the nature and duration of works to be undertaken and of the name and contact details of a responsible person, to whom enquiries/complaints should be directed at any time for the duration of the works. Regular updates on the work progress should be provided to all interested parties in writing.

Lighting:

glare and lighting shall be minimised, in accordance with recommendations of the Institution of Lighting Professionals in the 'Guidance Notes For The Reduction Of Light Pollution 2005'. (Please see Appendix 8)

Smoke:

no waste materials should be burnt on site of the development, unless specifically authorised by legislation or the council (e.g Wood affected by dry or wet rot).

Concrete crushing requires a permit under the Environmental Permitting Regulations 2010 or successive legislation, policy, standard or guidance. Please contact the Council's Environmental Health Department on Tel. 0208 753 3454 or email: environmentalprotection@lbhf.gov.uk

Technical Appendices 17

Where works involve materials containing **asbestos**, specialist licensed contractors and carriers should be employed for the safe handling and disposal of asbestos materials. Please contact the Health & Safety Executive on tel. 0845 345 0055 or via www.hse.gov.uk.

All **waste** materials associated with demolition and/or construction should be contained on site in appropriate containers and disposed of at a licensed disposal site.

Where the construction project is worth more than £300,000, a Site Waste Management Plan (SWMP) should be submitted to the Local Planning Authority, in accordance with the Site Waste Management Plans Regulations 2008. For more details, visit www.defra.gov.uk or www.netregs.gov.uk

17 Technical Appendices

Appendix 4g: Smell, Fumes and Steam from Commercial and Industrial Premises

Kitchens in restaurants, cafes, take aways, hospitals, schools etc.

The aim of any ventilation/extraction is to ensure that no nuisance, disturbance or loss of amenity is caused by odour, fumes, food droplets or noise, to nearby properties. Objectionable and offensive odours can cause significant adverse effects on people's lives and wellbeing, therefore details must be submitted for approval by the Council of the risk assessment, installation, operation and maintenance of odour abatement equipment and extract system, in accordance with the information below or successive legislation, policy, standard or guidance. Applications for food production premises without adequate kitchen extract and odour control are likely to be recommended for refusal.

All new or relocated extract ducts on external facades require planning permission.

A suitably qualified and experienced person with specialist knowledge of ventilation schemes should undertake the design and installation of a ventilation system.

In circumstances where the end user of the premises is unknown, or where specific types of food to be cooked is unknown, the installation should be designed to achieve the highest level of odour control in order to cater for a worst case scenario. To enable the Local Authority Planning Department to assess the suitability of a ventilation scheme the following information should be provided:-

1. Information on premises

The following information should be supplied:

- The number of meals to be served per day;
- The method(s) of preparation and cooking;
- The types of meal served, e.g. fish and chips, Chinese food, Indian food, pizzas or Italian dishes, etc; and
- Proposed hours of operation of the business and any ventilation plant

2. Plans and drawings

Provide a scaled plan showing the internal arrangement of the premises and the dimensions/location of the ventilation system. The plan must contain external elevations of the buildings showing the

- dimensions;
- route; and
- exhaust characteristics (i.e. appearance) of the ductwork in relation to the building.

The location of **all** filters and the fan must be clearly marked. Where the location of a filter is shown the type must be clearly identified and cross-referenced to the detailed product specification.

3. Pre-filters

A copy of the manufacturer's product data sheet should be supplied clearly showing:

- manufacturer's name;
- filter name and product code;
- dimensions of the pre-filter; and
- nature of the filter media.
- manufacturer's recommendations on the frequency and type of maintenance of the pre-filter having regard to the conditions that it will be used under.

4. Electrostatic precipitators (where proposed)

A copy of the manufacturer's product data sheet should be supplied clearly showing:

- manufacturer's name;
- ESP name and product code;
- dimensions of the ESP; and
- flow rate rating.

Manufacturer's recommendation on the frequency and type of maintenance of the ESP having regard to the conditions that it will be used under.

5. Carbon Filters (where proposed)

The details and type of carbon filter units should be identified. A copy of the manufacturer's product data sheet should be supplied that clearly shows:

- manufacturer's name;
- filter name and product code;
- dimensions of the filter panel; and
- the total number of filter panels in the filter bed.

The following information should also be included:

- the nature of the carbon (including product type);
- the frequency of replacement of the carbon units having regard to the conditions that it will be used under. The assumptions to this calculation must be clearly stated, including the frequency and duration of use. The manufacturer should provide recommendations on the frequency and type of maintenance required;
- total volume of carbon expressed in cubic metres;
- total mass of carbon expressed in kilograms;
- total surface area of the panels exposed to the exhausted air; and
- dwell time of the gases in the filter compartment and the control setting at which this is achieved. The assumptions to this calculation must be clearly stated, and should include the air change rate for the setting quoted.

6. Odour counteractant or neutralising system (where proposed)

The details and type of counteractant or neutralising system should be identified. A copy of the manufacturer's product data sheet should be supplied that clearly shows:

- manufacturer's name;
- name of delivery system and product code;
- counteractant or neutralising chemical to be used;
- COSHH data sheets for chemical to be used; and
- anticipated counteractant or neutralising delivery rate.

7. Cooker hood

The following information on the characteristics of the cooker hood should be supplied that clearly shows the:

- length that the cooker hood overhangs the appliances;
- face velocity at the cooker hood, expressed in metres per second; and
- dimensions of the opening of the cooker hood.

8. System Operation

17 Technical Appendices

In addition to the specification of the components the following must be provided about the system:

- extract rate (expressed as m³/s) at the proposed rate of extract;
- dwell time of the gases in the carbon filtration zone;
- volume of the kitchen; and
- efflux velocity

Note: The system performance is dependant upon the extract rate of the air. Where the rate can be adjusted by the use of dampers or a variable speed fan, then the conditions under which the extract rate can be achieved must be described.

9. Flue Design

All extract ducts should normally terminate at a minimum height of 1m above the roof ridge, of the main roof of any building within 20m of the building housing the commercial kitchen. Where this height is not acceptable due to visual adverse effects on local amenities, the extract should terminate at least 1m above the eaves of the main building. In exceptional situations, effective alternative systems may be considered at lower levels for small outlets only, additional techniques will be required in order to reduce odours, such as an increase in efflux velocity and additional filters, etc.

The extract duct should discharge vertically upward (ie. without bends) in order to facilitate good dispersion of effluent and minimise downwash.

10. Maintenance

A schedule of maintenance must be provided including details for:

- cleaning of washable grease filters;
- frequency of inspection and replacement of all filters (grease filters, pre-filters and carbon filters where proposed);
- inspection and servicing of fans; and
- if schedule is not based on manufacturer's instructions include the reasons why.

Fumes, smell and steam associated with vehicle workshops, dry cleaners, laundrettes and use of solvents, paint spraying, powder coating, dry-cleaner's etc.

Details will be required for the Council's approval of the installation, operation, and maintenance of suitable arrestment plant and extract system for vehicle workshops, paint spraying and powder coating as well as dry cleaner's etc. Effective spray booths and extract system and ducting will be required for operations and work shops where fumes, smells or steam would be emitted. For requirements of extract ducting – please see above.

Risk Assessment for Odour

Odour control must be designed to prevent odour nuisance in a given situation. The following score methodology is suggested as a means of determining odour control requirements using a simple risk assessment approach. The odour control requirements considered here are consistent with the performance requirements listed in this report.

Impact Risk	Odour Control Requirement	Significance Score*
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Technical Appendices 17

Low to Medium	Low level odour control	Less than 20
High	High level odour control	20 to 35
Very high	Very high level odour control	more than 35

* based on the sum of contributions from dispersion, proximity of receptors, size of kitchen and cooking type:

Criteria	Score	Score	Details
Dispersion	Very poor	20	Low level discharge, discharge into courtyard or restriction on stack.
	Poor	15	Not low level but below eaves, or discharge at below 10 m/s.
	Moderate	10	Discharging 1m above eaves at 10 -15 m/s.
	Good	5	Discharging 1m above ridge at 15 m/s.
Proximity of receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 and 100m from kitchen discharge.
	Far	1	Closest sensitive receptor more than 100m from kitchen discharge.
Size of kitchen	Large	5	More than 100 covers or large sized take away.
	Medium	3	Between 30 and 100 covers or medium sized take away.
	Small	1	Less than 30 covers or small take away.

17 Technical Appendices

Cooking type (odour and grease loading)	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish & chips.
	High	7	Kebab, Vietnamese, Thai or Indian.
	Medium	4	Cantonese, Japanese or Chinese.
	Low	1	Most pubs, Italian, French, Pizza or steakhouse.

Example application of scoring procedure for four different cooking situation

Example	Dispersion	Proximity of receptors	Size of Kitchen	Cooking Type	Total Score
1. Small Indian restaurant	20	10	1	7	38
2. Pub	5	5	5	1	16
3. Medium sized French restaurant	15	10	3	1	29
4. Large burger restaurant	10	10	5	10	35

Example 1 Represents a small Indian restaurant with the kitchen ventilation extract discharging into a small court yard.

Example 2 Represents a traditional pub cooking a range of food types with the kitchen ventilation extract discharging at roof ridge. The pub is located

in a rural location with the closest receptors 25 m away.

Example 3 Represents a medium sized French restaurant. The restaurant occupies the ground floor of two story building (adjacent buildings are taller). The kitchen extract discharges at roof eaves.

Example 4 Represents a large burger restaurant. The restaurant occupies a building within 20m of residential properties. The kitchen extract discharges at roof eaves.

Examples 1 and 4 are locations where the risk of problems arising due to these types of cooking activity are very high. In both instances, improving dispersion (e.g. to 1 m above roof ridge) will reduce the risk ranking. Based on this assessment approach the emissions from these restaurants will need a very high level of odour control to prevent nuisance. The level of odour control requirement is reduced with improvement in stack dispersion.

Example 2 is a location where the risk of problem occurring due to this type of cooking activity is low to medium. Based on this assessment approach the emissions from these restaurants will need a low to medium level of odour control to prevent nuisance.

Example 3 is a location where the risk of problems occurring due to this type of cooking activity is high. Based on this assessment approach the emissions from the restaurant will need a high level of odour control to prevent nuisance. The level of odour control requirement is reduced with improvement in stack dispersion.

17 Technical Appendices

Appendix 4h: Artificial Lighting

Floodlights, Security lights and Decorative Lighting

17.51 The recommendations of the Institution of Lighting Professionals in the ‘Guidance Notes For The Reduction Of Light Pollution 2011’ shall be observed in respect of minimising light pollution. If superseded or amended, the successive guidance, legislation, policy or standard should be adhered to.

17.52 Lighting contours should be provided by an experienced lighting engineer for the applicant, to demonstrate that vertical illumination, ie. lux levels at neighbouring facades of premises surrounding the development, will normally be no more than 10lux at ground floor and 5lux at first floor and higher. Further guidance is available from the Institution of Lighting on tel. 01788 576 492 or via www.theilp.org.uk

17.53 Glare should be prevented by:

- correctly locating, aiming and shielding the luminaires;
- using luminaires with double asymmetric beams designed so that the front glazing is kept at or near parallel to the surface being lit;
- keeping the main beam angle of lights, directed towards a potential observer, below 70 degrees.

17.54 Use of lights should be minimised, preferably by installation of an automatic time control switch co-ordinated with dusk and dawn.

17.55 Sky-glow should be prevented by avoiding up-lighters, shielding luminaires and directing the beam downward.

Illuminated signs and advertisements

17.56 The council will require details of lighting levels (cd/m²) before display of illuminated signs and advertisements, demonstrating that the recommendations of the Institution of Lighting Professionals “Guidance Notes For The Reduction Of Light Pollution 2011, in particular the ‘Technical Report No 5, 1991 - Brightness of Illuminated Advertisements” or successive guidance, legislation, policy or standard is adhered to.

Appendix 4j: Radiation

Telecommunications equipment / Mobile phone installations

17.57 Radiation exposure limits to time-varying electric, magnetic and electromagnetic fields (up to 300GHz) from the installation and the cumulative effect of equipment at any one site shall be in accordance with guidelines by ICNIRP (International Commission on non-ionising Radiation Protection) or successive guidance, legislation, policy or standard.

17.58 Advisory body: Health & Safety Executive, contact tel. no. 0845 345 0055 www.hse.gov.uk

Electricity transformers

17.59 Limits for electromagnetic radiation, separation distance from sensitive buildings and shielding of electricity transformers/ electrical substations and other installations emitting electromagnetic radiation must be observed.

17.60 Based on preventing well established biological effects, the ICNIRP reference levels for public exposure are 100 microteslas and 5 kilovolts per meter.

17.61 Advisory body: Health Protection Agency, www.hpa.org.uk , Email: webteam@hpa.org.uk

17 Technical Appendices

Appendix 5 - Storage of refuse and recyclables

Appendix 5a – Collection requirements for refuse and recycling storage

Siting and Access

By collectors

Each refuse container should be sited at ground level.

In new developments, the siting of storage containers should, wherever possible, allow movement of containers to the nominated collection point without being taken through a building, unless it is a porch, garage, carport or other covered open space.

The distance between the container and the collection vehicle, at the time of collection, should not exceed 10 metres.

All paths between the container enclosures and collection vehicles should be a minimum 2 metres in width, free from kerbs or steps and have a smooth, hard wearing surface capable of withstanding the loading imposed by a fully loaded wheeled container i.e. 1280 litre eurobin- max 500 kilos/940 litres chamberlain bin- max 375 kilos.

All roads and approaches to buildings or refuse storage areas should be level unless the slope falls away from the storage area at a gradient no steeper than 1:12

Residents or, in some cases caretakers are responsible for moving their bins/bags to the collection point on the collection day.

Access for collection must be provided between 6am -9pm, Monday to Sunday.

Any locks to the storage areas must have a standard 'Fire Brigade' 1, 2 or 4 pattern. Where there are electronic gates and /or barriers controlling access to such areas, codes should be provided to the collectors.

The floor and walls of waste stores must be constructed and finished in materials that are impervious and easily kept clean. Where appropriate, a trapped gully and water supply should be provided.

Wherever possible, refuse containers should be located within an enclosure to prevent nuisance from the spread of rubbish, odour and noise, especially in the case of multi-storey developments. The enclosure should be constructed of material in keeping with the surroundings and screened as much as possible, using boundary walls, fencing or planting. Doors/gates to any enclosure are not permitted to open out over the public highway.

Any enclosure, compound or storage area should allow room for filling and emptying and provide a clear space of 150mm between and around containers and be a minimum of 2m high. Communal storage areas should have an impervious floor and permit washing down and draining into the floor via a system for receiving polluted runoff. Unless the waste is to be stored in secure containers with close fitting lids, the compound should be secure to inhibit entry of vermin.

A rubber buffer should be affixed to the surrounding wall and placed at an appropriate height to prevent damage to the storage area walls and unnecessary noise. Doors to the storage area should also be fitted with a hook back facility to prevent damage from bins colliding into doors upon entry or exit.

Adequate lighting that is easily maintained is required within any enclosed storage area.

Consideration should also be given to providing separate rooms for storage of waste and recyclables within any storage area. If separate storage areas are to be provided for each dwelling, an area of 1.2m² is recommended for storage of waste.

By Collection vehicle

These are requirements for the current council collection vehicles. If you intend to use an alternative operator please check their requirements.

Roads providing access to the collection point should have foundations and a hard wearing surface capable of withstanding a fully laden collection vehicle of 26 tonnes gross vehicle weight (GVW), with a minimum axle weight of 11 tonnes. Access ramps need to be capable of supporting this same weight.

Roads should have a minimum width of 5 metres and arranged so that the collection vehicle can continue mainly in a forward direction. Vehicles should not be expected to reverse more than 50 metres to reach a loading position. Vehicles operating in service areas should enter and leave in a forward direction.

If a turning space is necessary, the road layout should permit a turning circle of 18.5 metres, kerb to kerb or 21.1 metres wall to wall.

Any gates or arches on the vehicle route to the storage area should give a minimum clearance of 3.72 width and 4.3 metres height.

Serious consideration must be given to any existing or planned traffic control measures such as controlled parking zones, yellow lines, red routes, bus lanes etc. and access planned so that they do not restrict the times when domestic collections can be made, and do not impede the council's ability to make collections without increasing risks to health and safety.

Underground Containers

For underground facilities, the void space required would have to be completely clear of services and cables to a depth of 3 metres and have a minimum clearance space overhead of approximately 8.8-9.8m, free from overhanging obstructions, to permit the lifting and emptying of containers. The formula for calculating this minimum clearance space is set out below. When considering site locations, the installation must also be within 5m of any overhead power-line.

MINIMUM CLEARANCE SPACE= height of vehicle + size of container + height of attachment + height of crane

3.8 3m³: 3m 1.5m 0.5m

4m³: 3.5m

5m³: 4m

In addition, the distance between the centre line of the bin installation (or the container lifting hooks, whichever is the furthest) and the roadside should not exceed 2.5m to facilitate the lifting and emptying operation.

17 Technical Appendices

Appendix 5b - Containers and maintenance

The council does not provide refuse bins or bags, or smart banks free of charge. It does however provide smart sacks for residential properties with kerbside collections.

Suitable refuse bins and smart banks may be hired by the council to businesses or multi-storey residential blocks where a waste and recycling agreement is taken out. The maintenance, repair and replacement of containers are included within the terms of the hire agreement except where damage is caused through vandalism or the negligence of the lessee. If the developer chooses to hire council bins, they should notify the council in advance and again when they require installation. The containers typically provided by the council are detailed below.

It is not recommended that developers supply their own bins as the management company would then be responsible for all repairs and replacement bins. However, should developers opt to supply their own bins, these must be compatible with council vehicles and lifting equipment.

Technical specification of containers used by the council

Euro bins and chamberlains are acceptable for the storage of refuse. Standard 1100 and 1280 litre euro bins are typically used as recycling bins, however smaller 660 and 330 litre bins are also available if necessary. If you supply your own recycling bins for the council to collect you must ensure that the lid is orange and marked with appropriate signage (i.e. list of accepted materials).

The following are guideline dimensions only. Developers should check the dimensions to ensure adequate space between bins when siting a number of units together, allowing for their manoeuvre, for example in and out of enclosures and where necessary through doorways and gates for collection.

Container	Height	Length	Width
Eurobin (1280L)	1480mm	1265mm	985mm
Eurobin (1100L)	1475mm	1250mm	980mm
Eurobin (660L)	1330mm	1250mm	720mm
Eurobin (360L)	1100mm	620mm	860mm
Chamberlain- square = (940L)	1410mm	1010mm	950mm
Chamberlain- square = (740L)	1410mm	1010mm	765mm

(= Chamberlains are only recommended and supplied where sites cannot take eurobins, due to restricted space and access)

Appendix 5c - Details to be provided by the developer

The developer should submit a Refuse and Recycling Management Plan which provides details of the following:-

- The likely volume of waste and recycling arisings, in order to assess the number of receptacles that will be required.
- The system proposed to encourage the segregation of wastes for recycling, especially in the case of multi-storey premises.
- The type(s) of container proposed to store wastes and recyclables;
- The location of refuse and recycling storage areas (plans);
- The method and frequency of collections anticipated, including any arrangements for replacement and storage of full containers between collections;
- The arrangements for vehicle access to the proposed area(s);
- The surfacing / screening and accessibility (for both user and waste operatives) for the area
- Details of access for disabled people up to refuse and recycling storage points and of portage assistance within large developments for disabled people who require it. BS8300:2009 provides further guidance on this.
- The signage and public information that will be provided to residents to encourage recycling and waste management.

Appendix 5d- Commercial Premises

17.62 Specific guidance on waste capacity and storage requirements for different types of commercial premises is outlined below:-

Offices

- 2,600 litres waste storage for every 1,000m² gross floor space. One third of the waste storage capacity should be retained for the storage of separated waste for recycling.

Retail

- 5,000 litres waste storage for every 1,000m² gross floorspace. This is not a generally applicable minimum requirement. Certain food outlets, especially those of the fast food type, would generate substantially greater amounts of waste. Waste Management will assess each proposal individually. One third of the waste storage capacity should be retained for the storage of separated waste for recycling.

Restaurants & Fast Food Outlets

- 10,000 litres waste storage for every 1,000m² gross floor space. This is not generally applicable minimum requirement. Certain food outlets, especially those of the fast food type, would generate substantially greater amounts of waste. Waste Management will assess each proposal individually. One third of the waste storage capacity should be retained for the storage of separated waste for recycling.

17 Technical Appendices

Hotels

- 7,500 litres waste storage for every 1,000m² gross floor space. This is not a generally applicable minimum requirement. The volume of waste produced depends largely on the type of hotel, since these range from short stay bed and breakfast to luxury banqueting facilities. Waste management should be contacted at an early stage in the design process to advise on storage space and equipment requirements. One third of the waste storage capacity should be retained for the storage of separated waste for recycling.

Schools

- 1,500 litres waste storage for every 100 pupils
- 1,000 litres recycling storage for every 100 pupils

Note: Waste Management should be contacted at an early stage in the design process to advise on storage space and equipment requirements.

Additional Considerations for Mixed Use Developments

Each separate user should have its own independent store for waste and recyclable material. Waste storage may be combined when 1100 litre wheeled containers, skips or skip compactors are used, providing a private contract is arranged by the managing agent. In any case, business owners are under legal obligation to comply with the Duty of Care.

The siting of storage areas for waste containers and chutes should not cause householders to carry refuse further than 25m (excluding vertical distance).

Residential units will normally be expected to have independent storage (unless full portorage is provided) but the developer must give consideration to the provision of communal recycling facilities, using either conventional above ground banks or underground containers.

Smaller sack containers are not suitable for mixed use developments.

Commercial Usage

If the Council is to be the intended waste carrier, each business needs to take out a waste and/or recycling agreement with the Council in advance of the supply of bins. Fees apply on the basis of bin rental charges plus a collection charge according to the number and frequency of collections. Developers should consult the appropriate officer .

If the developer is considering engaging a private licensed waste contractor to handle waste arising from commercial premises, they should consult potential waste contractors on the design of purpose built facilities at an early stage, copying their proposals to the Council. The specification details of the kinds of containers that are commonly used by the Council and the private sector are very similar.

Each application will be assessed to ensure that the number of bins provided will meet the need of the business. Normally, this would be on the basis of a weekly collection, except in the case of food premises. However, where this frequency is not sufficient, consideration will be given more frequent collections where more space cannot be afforded for storage.

Owing to the nature of the waste, food premises should have adequate space to store waste in one or more wheeled bins or Eurobins of a suitable size. It is recommended that in order to avoid potential odours, a minimum of two collections per week should be allowed for.

Storage areas for waste and recycling should be clearly defined and a sign erected indicating each area to identify the zone in the event of change in ownership or letting.

17 Technical Appendices

Index

- A**
- ACCESS FOR DISABLED PEOPLE, 25, 180, 279
 - ACCESSIBILITY , 39-44, 46-48, 91, 169, 171, 179, 182, 186, 226, 279
 - ADVERTISEMENTS , 52-54, 58-59, 85, 163, 188, 274
 - AIR QUALITY, 73, 78, 87-95, 100-101, 115, 122, 158, 161, 169, 171, 177, 215, 220
 - AMENITY SPACE, 8-10, 14, 78, 82, 122, 135, 257, 261
 - ARCHAEOLOGY, 5, 30, 62-64, 71
 - ARTICLE 4 DIRECTIONS, 8
- B**
- BALCONY, 9, 17
 - BARS, 25, 80, 202, 233, 263
 - BASEMENTS, 24, 28-29, 76, 83, 127, 131-133, 171, 173, 233
 - BIODIVERSITY, 23-24, 27-28, 92, 117, 120, 122-123, 137-140, 142-154, 158, 165, 211, 216, 219-220, 222, 225, 228, 235-236, 239, 243-244
 - BUILDING DESIGN, 41, 91, 95, 100, 142
 - BUILDINGS OF MERIT, 27, 35-37, 60
- C**
- CAFES, 83, 129, 268
 - Care, 27, 44, 47, 58, 88, 92-93, 111, 113, 126, 129, 149, 180, 193, 205, 254, 280
 - CAR PARKING, 123, 133, 166, 171, 173-176, 181, 187-188, 213
 - CLIMATE CHANGE, 98, 118-119, 125-126, 135, 157-160, 166, 219
 - COMMUNITY GROUPS, 3, 44, 82
 - COMMUNITY INFRASTRUCTURE LEVY, 217
 - CONSERVATION AREAS, 8, 19-22, 24-27, 32-33, 35, 37-38, 58-59, 62-63, 68, 152, 184, 199, 211, 256
 - CONTAMINATED LAND, 105-114, 116, 158, 161, 163-164, 216-218, 223, 225, 227, 229, 250, 252
 - CONVERSIONS, 7-9, 13, 42, 48, 78-79, 131, 171, 194, 260
 - CYCLING, 50, 148, 170-171, 177, 221, 230
- D**
- DENSITY, 8, 12, 14, 17, 22, 99, 152, 171, 264
 - DESIGN AND CONSERVATION, 19, 103, 168, 188
 - DISABLED PEOPLE, 9, 40-44, 46-50, 56, 173, 175, 178-182, 196, 216, 279
- E**
- ECOLOGY, 137, 141, 143, 247
 - EDUCATION, 47, 173
 - EMPLOYMENT, 176-177
 - ENERGY, 26, 89-91, 94-95, 97-103, 122, 129, 153-154, 158-160, 163-164, 167, 191, 212, 216, 218-220, 222, 224-226
 - ENTERTAINMENT, 47, 73, 76-77, 80, 82, 261, 263-264
 - EQUALITY, 3, 40, 42, 45, 197
 - EXTENSIONS, 8, 10, 14-15, 17, 22-24, 29, 39, 41, 46-47, 73, 121, 123, 131, 172, 246
- F**
- FLOODING, 45, 118, 121, 124-128, 130-135, 158, 220, 227-229
 - FORESHORE, 68, 127, 171, 208
 - FREIGHT, 77, 170, 212
- G**
- GARDENS, 9-10, 14-15, 20, 22-24, 27-30, 32-33, 35-36, 49, 62, 66-68, 70, 80-81, 120-121, 136-137, 146, 148, 153, 185, 191, 226, 257, 260-261
 - GRAND UNION CANAL, 220, 246
 - GREEN CORRIDORS, 137, 139-140, 147-148, 220, 243
 - GREEN INFRASTRUCTURE, 91, 117, 122, 126, 138, 142, 147-149, 158, 220-221
- H**
- HAZARDOUS SUBSTANCES, 107, 130, 245
 - HERITAGE, 19-20, 22, 25-26, 30, 32-33, 35-38, 42, 54, 62-67, 71, 117, 139, 215, 217, 219, 222
 - HOSTELS, 129
 - HOTELS, 48, 129, 136, 202, 261, 280
 - HOUSING QUALITY, 7-8, 23, 99, 171
- I**
- INDUSTRY, 116, 163, 216, 245-246, 248
- L**
- LANDMARKS, 21-22
 - LEISURE, 47, 73, 76-77, 80, 170, 207, 209, 263
 - LIFETIME HOMES, 175
 - LIGHT, 12, 29, 32, 49, 59, 76, 85, 143, 147, 149, 161, 163, 228, 245, 256, 266, 274
 - LIGHTWELLS, 9, 22, 24, 28-33, 117, 127, 171, 173, 233
 - LISTED BUILDINGS, 20, 27, 32, 35, 60, 66, 259
 - LOCAL REGISTER OF BUILDINGS OF MERIT, 35, 37, 60

Index

- M**
MAJOR DEVELOPMENT, 19, 98, 100-101, 128, 146, 167, 172, 223
METROPOLITAN OPEN LAND, 224
MOORINGS, 207-213
- N**
NATURE CONSERVATION, 26, 76, 117, 122, 137-140, 142-144, 146, 150, 159, 163, 165, 220, 243, 247
NOISE, 17, 73-85, 93, 100, 115, 158, 161-162, 164, 169, 172, 186, 203-205, 215, 223, 230, 254-266, 268, 276
NUISANCE, 73, 78, 81, 83-84, 115, 162, 204, 268, 270, 273, 276
NURSERIES, 88, 92, 129, 161, 228, 245-246
- O**
OFFICES, 78, 82, 110, 129, 136, 202, 259, 279
OPEN SPACE, 9-10, 26, 41, 122, 129, 142, 144, 152, 158-159, 178, 220, 224, 247, 276
OUTBUILDINGS, 24
- P**
PARADES, 19, 25, 37, 55
PARKING, 42-43, 81, 91, 170-171, 173-177, 179-180, 183-185, 187-188, 200-201, 213, 216-217, 225, 227, 277
PARKS, 20, 35, 49, 62, 66, 123, 137-138, 148, 153, 175, 180, 191, 211, 223-224, 247, 264
PAVEMENTS, 27-28, 123, 185
PEDESTRIANS, 40, 50, 59, 122, 176, 178-180, 182, 185-189
PLAYSPACE, 8
POLLUTION, 73, 75-77, 84-85, 88-94, 106-108, 111, 132, 147, 149, 157-158, 160-163, 169, 172, 215, 218, 224-225, 227-228, 245, 252-253, 255, 266, 274
POPULATION, 125-126, 138, 159, 177
PRIVACY, 10, 16-17, 23-24, 28, 32
PTAL, 173, 226
PUBLIC HOUSES, 24, 59, 80
PUBLIC TRANSPORT, 91, 169-171, 173, 178-181, 207, 212, 217, 226, 230
- R**
RECREATION, 9-10, 76, 85, 117, 122, 126, 129, 148
RECYCLING, 73, 136, 158, 164-165, 191, 193-205, 219, 222, 276, 278-281
REFUSE COLLECTION, 83, 191
REFUSE STORAGE, 164, 174, 276
RESIDENTIAL, 8, 10, 12-13, 15-17, 19, 24, 29-30, 42-43, 45, 48, 73-74, 76-82, 89, 92-93, 97-100, 102, 117, 125, 127, 129, 135, 158-159, 163, 167, 173, 176, 178, 183-184, 186, 193-197, 199, 202-203, 207-213, 218, 227, 246, 257-262, 273, 278, 280
RESTAURANTS, 73, 80, 84-85, 129, 202-203, 263, 268, 273, 279
RETAIL, 55, 77, 80-81, 170, 176, 178, 263, 279
RIVERSIDE, 19, 70, 74, 77-78, 127, 150, 171, 184, 191, 207, 211, 246
RIVER THAMES, 19, 68, 70-71, 84, 120, 125, 127, 130, 134-135, 137-138, 142, 150, 163, 171, 179, 207-212, 246
ROADS, 27, 77, 85, 92-93, 123, 178, 184-186, 276-277
ROOF EXTENSIONS, 23
ROOF TERRACES, 17
RUN-OFF, 9, 27-28, 117-123, 126-127, 134, 153, 171, 221
- S**
SAFEGUARDING, 107, 135, 170
SAFETY, 49-51, 54, 59, 85, 107, 172-173, 178-179, 181, 183-188, 210, 233-234, 254, 265, 267, 275, 277
SCHOOLS, 78, 82, 88, 92, 136, 161, 173, 178, 181, 228, 245, 261, 268, 280
SECTION 106 AGREEMENT, 172, 177-178, 184-185, 187
SERVICING, 80, 83, 164, 179, 188, 262, 265, 270
SHOPFRONTS, 25-26, 45, 52, 54-55, 59-61, 181
SHOPPING, 19, 25, 47, 50, 52-53, 55, 57, 179, 187
SPORTS FACILITIES, 77
STUDENT ACCOMMODATION, 48, 171
SUBTERRANEAN, 77, 125, 127, 132
SUNLIGHT, 9-10, 12, 17, 149, 166
SUSTAINABLE DESIGN, 87, 94-95, 98, 101, 106, 116-117, 138, 157-160, 166-167, 193-194
SUSTAINABLE WASTE, 193-194
- T**
TALL BUILDINGS, 99, 149, 158
TAXIS, 81, 179
TELECOMMUNICATIONS, 275
TERRACE, 9-10, 15, 23-25, 28-30, 32-33, 37, 56, 60, 246-247
THAMES, 67, 70-71, 125-128, 130, 134-135, 170-171, 208-209, 211, 220
THAMES POLICY AREA, 138, 208, 211
THAMES STRATEGY, 208, 211
TOURISM, 208

TOWN CENTRES, 19, 40, 47, 52, 73, 178, 181, 184, 186, 189, 265
TOWNSCAPE, 20-24, 27, 35-37, 54-55, 57, 60, 62-63
TRAFFIC MANAGEMENT, 173, 178, 223
TRAINING, 184
TRANSPORT ASSESSMENTS, 76, 80, 170-171
TRAVEL PLANS, 76, 80, 87, 170, 172-173, 222, 230

V

VIBRATION, 73, 77-78, 81-83, 161, 255-259, 262-263, 266
VISITOR ACCOMMODATION, 40, 48

W

WASTE, 28, 70, 73, 84-85, 88, 92, 106-107, 111, 114-116, 136, 151, 157-158, 160, 164-165, 184, 191-205, 210, 223, 225-226, 232, 247-249, 252, 254-255, 266-267, 276-281
WATER, 9, 27-28, 75, 83-85, 99, 106-108, 111, 117-136, 140, 145, 148, 150, 152-154, 157-159, 161-163, 165-167, 171, 185, 198, 200, 208, 210, 216, 218-219, 221, 226, 228-231, 243, 245-248, 252-254, 276
WATERWAYS, 105, 137, 162, 184, 207-208, 211-212
WHEELCHAIR HOUSING, 12
WINDOWS, 15-17, 22, 24-25, 29, 33-34, 55-57, 81-82, 93, 167, 204, 233, 260-261, 263