

# **Sustainable Environment & Development**

Draft **Supplementary  
Planning Document**

**February 2023**



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# Executive Summary

The impact of human activities on the local environment and the planet is something that the council and Brent's community consider needs to be addressed. The council declared a climate emergency in 2019. It is taking action to address climate change as a priority. Wherever possible, it wants to ensure sustainable development occurs. The Brent Local Plan vision sets out the importance of implementing the planned growth in the borough sustainably. This is to protect the environment and the quality of life of local people.

This document is known as a supplementary planning document (SPD). It does not create new policy. It does, however, provide detailed guidance on how current planning policies will be applied to different types of development. It will be a material planning consideration for planning decisions. It sets out requirements for developments requiring planning permission. It also seeks to influence development where there is no council planning control. It addresses key planning considerations. This is to improve development's environmental sustainability.

High quality sustainable development requires adopting a holistic approach. The design and construction of new buildings and the spaces around them is important. It has a key role in delivering sustainable development.

The true benefits of sustainable environment and development go well beyond simply cutting carbon emissions. There are also associated economic and social benefits. These include reduced energy bills and improved quality of life, now and in the long-term.

In addition, recovery from the pandemic presents an opportunity for a long-term vision to tackle inequality in numerous elements of the built environment. It has brought forward the need to optimise healthy places and build back greener by addressing disparities in the existing built environment. Many of these features tie in with the themes addressed in this SPD.

This SPD provides details of how the council will address the environmental impacts of development. This will be achieved by accelerating the necessary reduction of carbon emissions. This will further enabled by associated improvements in air quality, through quality green and blue infrastructure, efficient and clean energy, sustainable travel, reduced environmental nuisances and waste management in the borough.

# Consultation Statement

This draft Supplementary Planning Document (SPD) will be subject to a 6-week period of consultation. This will take place between **X February and X April 2023**. Consultation will be consistent with the Town and Country Planning (Local Planning) (England) Regulations 2012 and the council's Statement of Community Involvement (SCI).

The document will be made available on the council's website, as well as in Brent Council libraries. The council will promote it through general awareness raising undertaken through media releases, its social media pages and on its website. In addition, the council will notify all relevant people and organisations on its planning policy consultation database. It will also make all landlords in the borough registered with it, aware of the consultation.

Representations on the document can be made to: [planningstrategy@brent.gov.uk](mailto:planningstrategy@brent.gov.uk). Alternatively, you can write to: Paul Lewin, Team Leader Planning Policy, Brent Council, Civic Centre, Engineers Way, Wembley HA9 0FJ. Representations should be received by the council by midnight **X April 2023**. Please reference the appropriate section and paragraph of the document for each individual comment that you make. Please note that the council will not register anonymous responses. You should provide your name and if relevant, the organisation that you are working for, and that which you might be representing.

When reporting the consultation responses, organisation names will be referenced by the council. However, no individual's name or personal details of respondents will be made publicly available. Please can you indicate with your response whether you wish to be informed by the council of whether this document is adopted. Please also indicate if you would like to be informed of other planning policy consultations by having your details put on our planning policy consultation database. This information will only be used in relation to consultations on the council's planning and associated documents. Unless you indicate that you want to be put on this database, your personal details will only be kept until the council makes a decision on whether to proceed with the adoption of the SPD or not and has subsequently issued the appropriate notifications. Please see our [privacy policy](#) for more details.

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# **1. Introduction**



# 1.1

## Overview

- 1.1.1 The 1992 Earth Summit was the first international acknowledgement of the threat of climate change by global governments. It also linked this to the unsustainable and inequitable environmental, social and economic nature of a lot of human activities. It resulted in the United Nation's (UN) 2030 Agenda for Sustainable Development, the historic Paris Agreement in 2015 and COP26 Glasgow in 2021. At the core of the 17 Sustainable Goals was Good Health and Wellbeing; Affordable and Clean Energy; Sustainable Cities and Communities; Responsible Consumption and Production; Climate Action; Life below Water; Life on Land; Tackling Climate Change and Partnerships for the Goals. The Paris Agreement is a legally binding international treaty on climate change. Its goal is to limit global warming compared to pre-industrial levels to well below 2 and preferably to 1.5 degrees Celsius. COP26 mandated countries to provide their national action plans and updates on progress since Paris.
- 1.1.2 The UK government declared a Climate Emergency in 2019. It set out the ambition to become a net zero country by 2050. The majority of local councils have also declared a 'Climate and Ecological Emergency'. They set out priorities to mitigate climate change and attain zero carbon targets. Many committed to much more ambitious timescales than the 2050 target. The Mayor of London set out London's ambition to lead the way, becoming a net zero city by 2030.
- 1.1.3 Sustainable development is a core principle underpinning planning in the National Planning Policy Framework (NPPF). The objective purpose is to guide development towards sustainability while identifying local circumstances, needs and opportunities. It should align growth with infrastructure to improve the environment and adapt to the effects of climate change. This is reflected in the London Plan policies. It takes a holistic approach to sustainability and sets out the strategic requirements for development.
- 1.1.4 To align with the strategic sustainability principles, Brent Council has adopted a very proactive approach. This is through various strategies and planning documents taking us towards carbon neutrality.

## 1.2

# The Council's Approach to Sustainability

- 1.2.1 Brent Council declared a Climate Emergency in 2019, committing to carbon neutrality by 2030. The resulting Brent Climate and Ecological Emergency Strategy 2021-2030 (BCEES) sets out the local context and key actions at the forefront of tackling climate change. Within the 2021-22 Delivery Plan, the Climate Adaptation and Resilience Plan provides a framework. It identifies feasible infrastructure measures to be addressed in yearly delivery plans.
- 1.2.2 The Brent Local Plan 2019-2041 sets out the borough's future development strategy. Its policies align with the BCEES priorities. Crosscutting, it addresses various climate change aspects.
- 1.2.3 The Local Plan aims to provide a resilient borough. This will be achieved through balancing future development alongside meeting national sustainability objectives. This will reduce exposure and vulnerability to climate hazards, cut back greenhouse gas emissions, integrate sustainable transport, initiate the circular economy and conserve and expand the natural environment.
- 1.2.4 This SPD sets out ways to ensure sustainable development is achieved. It focuses on the explanation of relevant Local Plan policies, technical standards and their implementation. It covers seven key topics.
- 1.2.5 Achieving high quality places and conserving the historic environment of Brent is fundamental to the council. In addition to the National Design Guide (2019) and Building for a Healthy Life (2020), other local guidance related to design include the Brent Design Guide SPD1, Residential Extensions and Alterations Design Guide SPD2, Shopfronts SPD3, Basements SPD, and emerging Residential Amenity Space and Place Quality SPD. The respective conservation area design guides provide information on how to preserve and enhance the character of each area.
- 1.2.6 The council encourages the use of construction standards to demonstrate excellence in sustainable development. Developers should use the latest version of Code of Construction Practice and Code of Considerate Practice.

## 1.3

# Purpose of this Document

- 1.3.1 This SPD is part of the council's approach to ensuring collectively that new development in Brent is environmentally sustainable. It addresses technical standards and relevant assessments needed to limit greenhouse gas emissions.
- 1.3.2 Its purpose is to help residents, business owners, developers and planners ensure that development proposals improve Brent's environmental performance. Following this guidance will contribute to helping meet the BCESS's targets and ambitions.
- 1.3.3 This SPD particularly expands on air pollution, natural environment, energy efficiency and waste policies – key climate change considerations. The guidance provides a consistent approach on the implementation of the Local Plan sustainable development and natural environment policies. It highlights key considerations during the planning process for planning applications. Policies include:
- Policy DMP1 Development Management General Policy
  - Policy BGI1 Green and Blue Infrastructure in Brent
  - Policy BGI2 Trees and Woodlands
  - Policy BSUI1 Creating A Resilient and Efficient Brent
  - Policy BSUI2 Air Quality
  - Policy BSUI3 Managing Flood Risk
  - Policy BSUI4 On-Site Water Management and Surface Water Attenuation
  - Policy BT1 Sustainable Travel Choice
  - Policy BT2 Parking and Car Free Development
  - Policy BT3 Freight and Servicing
- 1.3.4 This SPD will be a material consideration in the determination of planning applications. The SPD does not introduce new standards that contradict the policies in the Local Plan. It does, however, add value by including further detail and guidance on how to apply current policy and demonstrate excellence in sustainable development. Sustainability measures need to be incorporated early into the planning process.
- 1.3.5 The SPD will ideally also encourage wider adoption of its recommended approaches where planning permission is not required (permitted development rights, householder applications, retrofit and refurbishment).

## 1.4

# Structure of the Document

- 1.4.1 **Introduction Chapter** – a council-wide approach to climate change and sustainability introducing key theme topics.
- 1.4.2 **Theme Chapters** - a topic-by-topic breakdown of the key Brent built and natural environment sustainability issues. Each topic's structure comprises:
- Brent as existing and future;
  - Policies, guidance and tools;
  - Key policy considerations;
  - Assessments and mitigation measures;
  - Development Management planning requirements;
  - Planning conditions and obligations; and
  - Monitoring requirements.
- 1.4.3 **Sustainability Checklist** - briefly addresses how all proposals should comply with relevant criteria in each theme chapter. It signposts to other appropriate statements/strategies. It will need to be submitted with all development applications.

## 1.5

# Sustainability Through Standards

- 1.5.1 The council determines proposals by using leading assessment methods and rating systems. For sustainability purposes, these often go beyond the Building Regulations. The Building Research Establishment (BRE) sets out a suite of recognised certification systems. These represent a broad range of categories and criteria, from energy to ecology. Benchmarks are used to evaluate a building's or place's specification, design, construction and use.
- 1.5.2 For the environmental performance of non-residential buildings, the Building Research Establishment Environmental Assessment Method (BREEAM) can be used. For residential, the council encourages the use of the Home Quality Mark (HQM). Both sets of standards cover a broad range of sustainability issues beyond the Building Regulations including net zero carbon, whole life performance, health and wellbeing, social impact, outdoors, biodiversity, circularity, resilience, quality assurance, disclosure and reporting.
- 1.5.3 The Building Regulations and BREEAM or HQM should be considered before progressing detailed design. This will achieve the best performance, in the most economic manner.
- 1.5.4 In addition to the above, the council also encourages achieving Passivhaus standards of high levels of insulation and air tightness, aligned with appropriate ventilation.
- 1.5.5 Verification of each standard will require accredited assessors or specialist consultants. Their early engagement will result in the most effective cost and environmentally sustainable outcomes.

## 1.6

# Demonstrating Environmental Sustainability in Planning

- 1.6.1 Planning applications should be supported by evidence to demonstrate how they meet this SPD's requirements to achieve the highest level of environmental sustainability performance. These are set out in the respective themed chapters (see **Section 1.7**).
- 1.6.2 Some assessments may require a greater level of information to be available as the development proceeds from its initial design to implementation. Pre-applications for major developments should be accompanied with pre-assessments when full assessments cannot be completed. This will better ensure a development can reach the necessary standard.
- 1.6.3 Due to the lower level of information contained in an outline planning application, it may not be possible to complete assessments that demonstrate reaching the necessary standards. Planning conditions will be used to secure the completion of assessments demonstrating the potential to reach the necessary standard to support the reserved matters applications and subsequent stages. To meet standards, it is important that applicants carry out any pre-assessment necessary at the outset to avoid difficulties as the scheme evolves.
- 1.6.4 Other applications will be expected to demonstrate compliance with this SPD through the Design and Assess Statement and, where necessary, through other dedicated statements.

## 1.7

# Outline of Key Themes

1.7.1 The seven themes covered in the SPD include:

## Chapter 2. Air Quality

## Chapter 3. Green Infrastructure

## Chapter 4. Water Management

## Chapter 5. Sustainable Movement

## Chapter 6. Energy

## Chapter 7. Waste & Circular Economy

## Chapter 8. Other Environmental Impacts

## Chapter 2. Air Quality

Air pollution can arise from many sources and activities, including transport, industrial processes, domestic and commercial premises, energy generation, agriculture, waste storage/treatment and construction sites. Every new development will need to consider its air quality impact. This includes consideration of emissions generated by the development from buildings or associated activities, construction activities and transport movements. New developments in Brent are required to minimise exposure to pollution and provide solutions to improve local air quality. Consideration of air quality in the development design will lead to meeting the air quality standards and an improved environment. Good design at the outset is the most effective and straightforward way to a low/zero emission development.

## Chapter 3. Green Infrastructure

New developments play a key role in delivering new and improving existing green spaces across Brent. Green infrastructure refers to ecological systems, both natural and man-made. It includes parks, trees, allotments, green corridors, landscape, permeable pavements, green roofs, green walls, rain gardens and ecology. Well-designed green infrastructure has the potential to offer multifunctional benefits including reduced air pollution; carbon storage; sustainable drainage; habitat for biodiversity; health and recreational benefits and the creation of visually pleasing spaces. The extent to which it provides these benefits depends on how it is designed and maintained. Emphasis should be placed on ensuring that it functions in a way that meets the specific needs of the intended users.

## Chapter 4. Water Management

Water management is the planning of water, in terms of both water quality and quantity. This includes:

- **Managing water efficiently:** London has a finite supply of water, increasingly adversely affected by climate change. To ensure future supply, new developments need to be designed for optimal water consumption. This will also need integration of water reuse;
- **Minimising damage to life and property:** urbanisation and extreme rainfall events with climate change make flood risk more common. New developments need to manage the impact of flooding and not increase flood risk elsewhere; and
- **Maximising blue infrastructure benefits:** Brent has various water bodies. Schemes should contribute to and enhance the natural and local environment by recognising the wider benefits of adjacent blue infrastructure.



## **Chapter 5. Sustainable Movement**

Embedding sustainable movement in schemes is a significant planning consideration in Brent. Movement links should be accessible, safe and visually appealing. Development must connect to the surrounding existing active travel routes or public transport. In addition, the layout of the scheme should integrate with the surrounding community facilities, ensuring that local amenities are accessible by modes of active travel (walking and cycling).

## **Chapter 6. Energy**

Building design has an important role to play in supporting the transition to a carbon neutral Brent. The council aims to reduce the total carbon emissions from the development with sustainable energy measures on-site. Developers should aim to reduce energy demand, utilise energy efficiently, supply energy more efficiently and incorporate renewable technology.

## **Chapter 7. Waste & Circular Economy**

Waste management is a circular approach that requires all type of waste recycling to be planned for in Brent. In the designing of buildings, it means considering the impact of the development across its whole lifecycle e.g. from inception of design through to procurement, construction, operation, maintenance and to end of life recycling. At every stage, actions minimising a development's environmental burden should be undertaken and planned for. Buildings should be designed for longevity, with ease of adaptability to meet future changing needs. Opportunities to reduce and recycle should be considered from the outset to facilitate a zero carbon footprint. This is both from construction material and by building users throughout the development's lifespan.

## **Chapter 8. Other Environmental Impacts**

There are many other environmental impacts that negatively affect the local environment that also need to be managed. Examples include noise, odour, light pollution, ventilation, vibration and potential contamination. Development proposals need to carefully consider these, ensuring acceptable land use activities in appropriate locations.

## 1.8

# Approach to Retrofit and Refurbishment

- 1.8.1 Retrofit and refurbishment imply a process of improvement. Retrofit is the introduction of new materials, products and technology into an existing building. It can include energy saving solutions such as new heating system, renewable energy, preventing overheating, irrigation, insulation, glazing, ventilation or building management system. Refurbishment is improvement of existing by re-decorating or re-equipping. It can include double or triple glazing, draught proofing, lighting control, cavity wall insulation, voltage optimisation, water reuse, new equipment and appliances.
- 1.8.2 Existing homes and buildings provide a prime opportunity to deliver sustainable cuts in carbon emissions, environmental impact and operational costs. The BCEES recognises the vital issue of the council addressing the existing building stock during climate adaptation and resilience planning. The strategy identifies work streams and pilot projects around retrofit.
- 1.8.3 However, given the relationship to the sustainable built environment, it is thought relevant to outline key guidance in this document. The following references expand on retrofit that applicants and planners may refer to:
- Climate Emergency Retrofit Guide, LETI, Passivhaus Trust, RIBA, UKGBC, CIBSE and AECB
  - Net Zero Estate Playbook: A guide to decarbonising government property 2021, Government Property Function
  - Retrofit Internal Wall Insulation Guide to Best Practice 2021, BEIS
  - Retrofit London Housing Action Plan 2021, London Councils
  - Retrofit for the Future Guide 2014, BEIS: Technology Strategy Board

## 1.9

# Behaviour Change and Incentives

- 1.9.1 An environmentally sustainable future will require both public and private sector intervention and behaviour change. This will be from all those who live, work, invest in, and visit Brent. It requires people to reduce energy use, invest in new energy technology, rethink water consumption, protect wildlife and ecosystems, switch to clean transport and recycle waste.
- 1.9.2 Numerous factors can affect an individual's efforts and require adjustment in changing long-term habits. These can be psychological, social, cultural, financial or structural.
- 1.9.3 For planning to drive behaviour change, there also needs to be some non-monetary incentive. This can include, but not be limited to:
- Smoother planning processing;
  - Training or workshops with officers and industry;
  - Recognition of exemplar schemes on the council's website;
  - Marketing and publicity via awards;
  - Certification schemes e.g. eco labels (BREEAM, BRE, LEED, Passivhaus, WELL-label);
  - Long-term economic viability (reduced operational cost and maintenance);<sup>1</sup> and
  - Growing public demand for a sustainable built environment in which people want to live, work and spend time.<sup>2</sup>

## 1.10 Types of Development

- 1.10.1 This SPD focuses on new developments and refers to the following types:
- **Major development:** Provision of 10 dwellings or more and a floor space of over 1,000sqm;
  - **Minor development:** Provision of 1-9 dwellings and floor space less than 1,000sqm;
  - **Change of use:** A type of minor development where no major building or engineering work is involved and the intention is only to change the existing use class;
  - **Permitted development:** A type of development that does not require the council to grant planning permission. The council however encourages individuals carrying out permitted development to address adverse environmental impacts.
- 1.10.2 Development in conservation areas or affecting listed buildings will be assessed on a case-by-case basis and in line with the respective design guides. Minor householder development involving extensions or alterations is also encouraged to address adverse environmental impacts.

## **2. Air Quality**

## 2.1 Air Quality in Brent

- 2.1.1 The majority of Brent has been designated as an Air Quality Management Area (AQMA). This is due to exceedances in national air quality targets, specifically for Nitrogen Dioxide (NO<sub>2</sub>) and Particulate Matter (PM<sub>10</sub>).
- 2.1.2 The Greater London Authority (GLA) has identified a number of Air Quality Focus Areas (AQFAs) in Brent. The council has also identified a number of 'hotspots'. This list is subject to occasional review. When updated, the new boundaries will be shown on the council's interactive [Local Plan Policies Map](#).
- 2.1.3 The largest contributors to poor air quality in Brent for NO<sub>x</sub> and PM emissions are road transport, local energy generation, industrial processes, commercial cooking and construction. New development has a significant role to play in reducing this pollution.
- 2.1.4 Key actions in Brent's Air Quality Action Plan aim to address this. New development actions are:
- **Reduce building emissions:** Reduce construction emissions, prioritise clean energy in buildings, deliver AQ neutral and positive development, improve existing poor performing buildings and waste reduction;
  - **Reduce transport emissions:** Provide for walking and cycling infrastructure, discourage engine idling, shift to low emission vehicles, installation of Ultra Low Emission Vehicle (ULEV) infrastructure, shift to low emission deliveries and council fleet; and
  - **Improve green infrastructure:** Provide green barriers and tree planting to reduce exposure to pollution and reduce need for mechanical building cooling.

## 2.2 Policy Overview

### National Policy & Guidance

Air Quality (England) (Amendment) Regulations 2002  
Environment Act 2021  
National Planning Policy Framework, Para 181  
Planning Practice Guidance Air Quality  
Department for Environment, Food & Rural Affairs (Defra) Clean Air Strategy

### London Plan Policy & Guidance

London Plan Policy SI 1 Improving air quality  
London Plan Policy D13 Agent of Change  
Code of Construction Practice 2022  
London Local Air Quality Management (LLAQM) framework  
The London Environment Strategy  
Mayor of London LPG Air Quality Neutral 2022 (draft)  
Mayor of London LPG Air Quality Positive 2022 (draft)  
The Control of Dust and Emissions during Construction and Demolition SPG  
Non-Road Mobile Machinery (NRMM) emissions standards  
School and nursery air quality audits  
Mayor's Air Quality Fund (MAQF)  
Air Quality Planning Toolkit for London Boroughs

### Local Plan Policy & Guidance

Brent Local Plan Policy BSUI2 Air Quality  
Brent Air Quality Action Plan 2017-2022  
Air quality annual status report 2021

- 2.2.1 Air pollution poses the biggest public health environmental risk. The Environment Act 2021 sets out to achieve air-quality targets. Presently key concerning pollutants are nitrogen dioxide (NO<sub>2</sub>) and Particulate Matter (PM<sub>2.5</sub> and PM<sub>10</sub>). PM<sub>2.5</sub> provides greatest human health harm.
- 2.2.2 The Air Quality (England) (Amendment) Regulations 2002, provides the statutory basis for the national air quality objectives. The GLA has taken these forward through the Local Air Quality Management (LLAQM) Guidance for London. This sets out to achieve an annual average PM<sub>2.5</sub> concentrations target of 10 micrograms per cubic metre (µg/m<sup>3</sup>) by 2030. This is an accelerated approach compared to the Environment Act 2021 target of 2040.

- 2.2.3 The LLAQM system is a statutory process. Local authorities monitor, assess and take action to improve local air quality. In areas of non-compliance with air quality objectives, an Air Quality Management Area (AQMA) is declared.
- 2.2.4 Within the AQMAs, the GLA identified air pollution hotspots known as Air Quality Focus Areas (AQFAs). AQFAs are locations with high human exposure with significant exceedance of national air quality objectives.
- 2.2.5 To guide development in AQMA and AQFAs, in line with the London Plan, the Local Plan has adopted an air quality neutral and positive approach. It also contains many policies that indirectly seek to improve air quality such as sustainable energy, sustainable travel and open spaces.
- 2.2.6 A good air quality approach makes an active contribution to improving air quality in and around a development site. It also minimises exposure of its occupiers to existing sources of poor air quality. This will require improvements in vehicle technology, sustainable modes of transport improved building standards and construction management.

## 2.3 Key Policy Consideration: Air Quality Neutral

- 2.3.1 London Plan Policy SI 1 and Local Plan Policy BSUI2 require all new developments to be Air Quality Neutral (AQN). An AQN development meets, or improves upon, the benchmark emissions set out in the draft Air Quality Neutral LPG. These baseline benchmarks are set out in **Table 1** and may be subject to updates as per the LPG.
- 2.3.2 There are two sets of benchmarks from two main sources of air pollution from new developments:
- **Building Emissions Benchmark (BEB):** emissions from equipment used to supply heat and energy to the buildings; and
  - **Transport Emissions Benchmark (TEB):** emissions from vehicles travelling to and from the development.

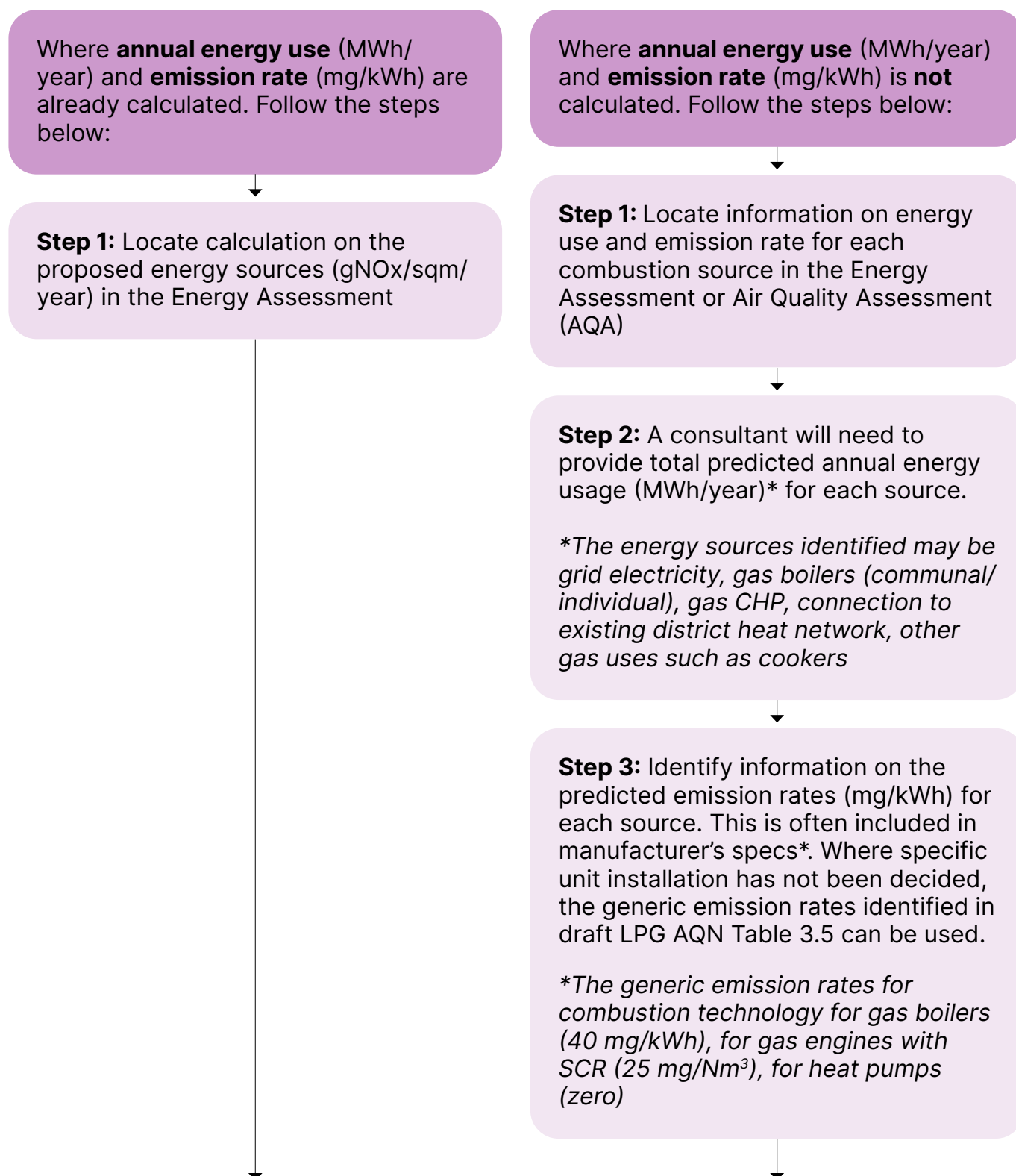


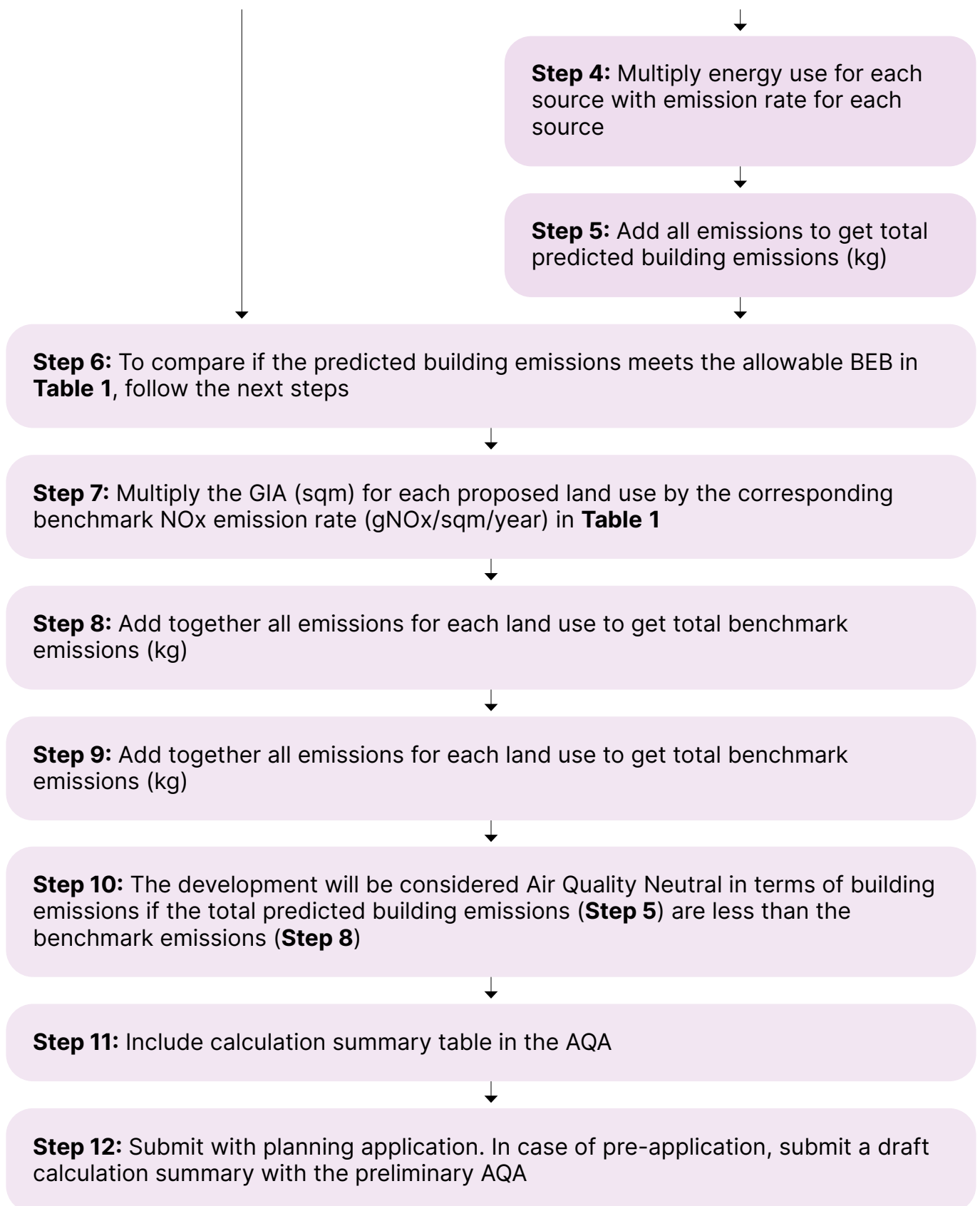
Land uses	Building Emissions Benchmarks (BEB) (gNOx/sqm/annum)				Transport Emissions Benchmark (TEB) for outer London sqm (GIA)
	Individual gas boilers	Gas Boiler Network	CHP + Gas Boiler Network	Heat pumps + Gas boiler network	
Residential (including student accommodation and large-scale purpose-built shared living development)	3.5	5.7	7.8	5.7	447
Office / Light industrial	1.43	2.62	11.63	2.62	16
Retail (Superstore)	0.53	0.97	4.31	0.97	216
Retail (Convenience)	0.53	0.97	4.31	0.97	274
Restaurant/Café/Bar	1.76	3.23	14.344	3.23	170
Hot food takeaway	-	-	-	-	590
Industrial	1.07	1.95	8.73	1.95	16.3
Storage and distribution	0.55	1.01	4.50	1.01	5.8
Hotels	9.47	15.42	38.16	15.42	6.9
Care homes and hospitals	9.15	14.90	36.86	14.90	19.5
Schools, nurseries, doctor surgeries, other non-residential institutions	0.90	1.66	7.39	1.66	44.4
Assembly and leisure	2.62	4.84	21.53	4.84	47.2
Non-combustion heat sources: electric panel heaters, heat pumps	Zero				-
Solid or liquid biomass	Zero				-

**Table 1: Air Quality Neutral building and transport emissions benchmarks**

**2.3.3 BEB:** The benchmarks for BEB are set out as the maximum allowable emission rates of nitrogen oxide (NOx) and particulate matter (PM). It is defined in grams (g) of nitrogen oxides (NOx) emitted per square metre (sqm) of floorspace (GIA) over a year (gNOx/sqm/annum).

2.3.4 The NO<sub>x</sub> BEB benchmarks are based on the type of energy technology used. This relates to the development's size and use class as shown in **Table 1**. However, these are dependent on the characteristics of the energy strategy adopted. Where these are different, the draft Air Quality Neutral LPG provides the following steps to confirm the predicted emissions of the development:





**Table 2: Total predicted building emissions calculation (gNOx/sqm/annum)**

2.3.5 **TEB:** The benchmarks for TEB for non-residential use are set out as the predicted number of trips per sqm of floorspace (GIA) over a year (trips/sqm/year). The TEB for residential are anticipated number of trips per dwelling (trips/dwelling/year).

2.3.6 The TEB benchmarks are based on the generated car or light van trips defined for different land uses and areas in London as shown in **Table 1**.<sup>3</sup> However, these are dependent on the characteristics of the transport strategy adopted. Where these are different, the draft Air Quality Neutral LPG provides the following steps to confirm the predicted emissions:

**Step 1.** Locate information on proposed energy sources in the Transport Strategy\*

*\*where peak hour trips are considered, full number of predicted trips covering daily and annual rates will be suggested.*



**Step 2.** Multiply the number of dwellings (residential) or GIA (non-residential) for each land use is by the benchmark trip rate in **Table 1**



**Step 3.** Add together all emissions for each land use in the development proposal to get total TEB



**Step 4.** Include calculation summary table in the AQA



**Step 5.** Submit with planning application. In case of pre-application, submit a draft calculation summary with the preliminary AQA



**Step 6.** The development will be considered Air Quality Neutral in terms of transport emissions if the total if the total trip rate is less than or equal to the TEB in **Table 1**

**Table 3: Total transport emissions calculation**

- 2.3.7 A development must meet both benchmarks separately on-site. If the AQA shows it does not do this, the priority is to amend the proposal so it does. If development is unable to achieve this, the council will secure off-site mitigation measures within the borough. This will be based on the Defra damage cost toolkit completed by the developer.
- 2.3.8 In some cases, due to the nature or location of the proposed scheme, minor developments will be required to demonstrate meeting AQN benchmarks in a full AQA. In most cases it will however be in the Design & Access Statement.

## 2.4 Key Policy Consideration: Air Quality Positive

- 2.4.1 London Plan Policy SI 1 and Local Plan Policy BSUI2 require all new major developments in AQFA and the borough's Growth Areas to be Air Quality Positive (AQP). This includes development with large numbers of people particularly with and/or near sensitive users and uses.
- 2.4.2 A development must exceed minimum benchmarks in meeting both BEB and TEB to create a positive impact. The draft Air Quality Positive LPG sets out opportunities available and measures on how to deliver this. To achieve compliance, AQP considerations will have to inform a development's design at a very early stage. This will reduce revisions during the planning application process.
- 2.4.3 In and around it, AQP development maximises local air quality benefits. It also minimises exposure to existing sources of poor air quality. An AQP Statement should set this out, using the draft LPG's AQP Matrix template, outlining how the proposed measures will be delivered. It should signpost the various strategies that have informed the development's design including:
- Building emissions;
  - Transport emissions;
  - Green Infrastructure; and
  - Design and futureproofing.
- 2.4.4 If the AQA shows the development is not AQP, the priority is to amend the proposal so it is. If not possible, the council will secure off-site mitigation measures exceeding the relevant London Plan Policy minimum requirements.

## 2.5 Planning to Mitigate Air Quality

- 2.5.1 Planning applications may affect air quality in Brent or give rise to new exposure to poor air quality. Where this is the case, the council will have regard to policies in the NPPF, London Plan and Local Plan. Other guidance includes LPGs, the AQAPs and this SPD.
- 2.5.2 Developments should seek to control and improve air pollution by meeting the prescribed emissions benchmark. The significance given to air quality in making a planning application decision will depend on factors including the development's:
- Location;
  - Type;
  - Sensitivity of use e.g. hospital, school, nurseries, adult care homes, parks, GP surgeries;
  - Sensitivity of receptors in the surrounding area at risk of increased pollution exposure;
  - Surrounding area's air quality;
  - Detailed calculations of the BEB, TEB and future scenario, and
  - Mitigation reaching required levels.
- 2.5.3 The likely air quality impacts should be considered very early on in the development's design process. Calculations against the benchmarks should inform the design evolution and also be set out in an AQA.
- 2.5.4 An AQA should be submitted for all major planning applications. In certain cases, minor developments will require a full AQA. The AQA's detail (see **para 2.5.7**) will depend on the development type proposed. This includes the following:
- Major or minor development in AQMAs, AQFAs or Growth Areas;
  - Major development subject to pre-application (should be accompanied with a preliminary AQA);
  - Development including or near to a sensitive use (hospital, school, nurseries, adult care homes, parks);
  - Development including installations of CHPs or large communal boilers, combustion or biomass based technologies;
  - Development including stand-by/short-term power generation units regulated by the Environment Agency;
  - Development creating long-term odour, dust, smoke, emissions and other fumes;
  - Development interfering with the council's Air Quality Action Plan;
  - Distribution, car, coach or lorry parks;
  - Long-term construction sites over a period of a year or more;
  - Development creating additional HGV movements; and
  - Minor development including a new heating system.

- 2.5.5 In the case of minor development, this can be addressed in a simplified way in the Design & Access Statement.
- 2.5.6 These documents should signpost the application's design measures, energy strategy, transport strategy and green infrastructure strategy. Defra's Technical Guidance on AQAs, tools and good practice should be adhered to. Where specific details are not available at the application stage, indicative values may be used given final values inform the final AQA. However, it is recommended that developers should engage with an air quality consultant early on in the design process.
- 2.5.7 The following information should be included as part of assessments:
- Relevant national, regional and local policy compliance;
  - The assessment methodology adopted including:
    - Baseline conditions;
    - Modelling tools;
    - Input data sources;
    - Relevant receptors; and
    - Assumptions (e.g. street canyon);
  - Air quality impacts with and without the proposed development;
  - Use of recognised and validated dispersion models;
  - Long and short-term air quality impacts against standards;
  - The impact of ambient air quality on the development's users;
  - Acceptable mitigation measures to reduce or remove adverse impacts;
  - Measures that could deliver improved air quality even when legally binding limits for air pollutants are not being breached; and
  - Construction phase impacts.
- 2.5.8 Other assessments that may be required include the following (see **Section 8**):
- A **Dust Monitoring Plan** must be submitted for approval. This must be in accordance with the GLA's Control of Dust and Emissions during Construction and Demolition SPG. It must set out implementation measures to reduce the construction phase impacts;
  - A **Demolition and Construction Management Plan** submitted and approved prior to any start on site to include: a Demolition and Construction Method Statement, a Demolition and Construction Traffic Management Plan and a Demolition and Construction Waste Management Plan;
  - A **Ventilation Strategy and Extraction Statement** submitted prior to the occupation of any part of the development.

# Mitigation Measures

2.5.9 Applicants are encouraged to propose innovative mitigation measures to actively improve air quality or reduce current exposures. These can include the following non-exhaustive list.

## 2.5.10 **Major Developments**

- Incorporate Healthy Streets indicators;
- Maintain suitable separation distances between air pollution sources and receptors, especially for sensitive land uses and public realm;
- Enhance biodiversity such as trees and hedges as screening, where this can create a barrier or maintain separation between sources of pollution and receptors;
- Provision of food growing opportunities to decrease travel;
- Adopt heat and energy generation technologies from efficient and/or renewable sources;
- Use appropriate filtration with placement of ventilation systems air inlets away from poor air quality sources and outlets away from recreation spaces;
- Locate exhaust vents and flues away from recreation spaces;
- Use design to ensure that street canyons, restricting dispersion of road traffic emissions, are not formed or made worse;
- Include infrastructure to promote low air quality impact transport modes (such as electric vehicle charging points);
- Adopt Code of Construction Practice and control dust and emissions from construction, operation and demolition; and
- Encourage pedestrian and cycle routes away from busy roads and reduce severance.

## 2.5.11 **Minor Developments**

- Use green infrastructure between sources of pollution and receptors;
- Adopt technologies efficient and/or renewable sources to generate heat and energy;
- Car free, clean transport and active travel infrastructure; and
- Control construction, operation and demolition dust and emissions.



## 2.6 Development Management

2.6.1 The following section aims to provide a clear and consistent approach for stakeholders to follow when assessing a development's potential air quality implications. At each planning application stage, the following will be required:

- **Phased development:** Each phase should demonstrate compliance with the relevant policy considerations. AQA including calculations for the whole development and additional tables showing calculations for all phases (see Appendix 2 of the draft Air Quality Neutral LPG).
- **Outline applications:** AQA including an Implementation Plan explaining how the detailed design and application stage will secure the AQP approach. Planning conditions, securing Reserved Matters application revision assessments for changes in layout and the design, use class, transport or energy strategy.
- **Pre-applications:** Preliminary AQA and calculations.
- **Full applications:** AQA, Air Quality Positive Statement, Dust Management Plan, Demolition and Construction Management Plan, Ventilation Strategy and Extraction Statement.

2.6.2 The planning requirements listed in tables below are based on the type of proposed development. It sets out requirements for:

### Major Development

### Minor Development

### Change of use

### Permitted Development

#### Major Development

- A** In an Air Quality Focus Area should be Air Quality Positive;
- B** In a Growth Area should be Air Quality Positive;
- C** Subject to an Environmental Impact Assessment must be Air Quality Positive; or
- D** Otherwise, be Air Quality Neutral.

#### Minor Development

- E** All must be Air Quality Neutral.

#### Change of Use

- F** Those emitting odours, dust, smoke, and other fumes must be Air Quality Neutral.

#### Permitted Development

- G** With emission sources such as permitted installations and industrial processes. Where required in the General Permitted Development Order 2015 (as amended), and/or covered by other environmental regulations will need to submit a detailed Air Quality Impact Assessment;
- H** Prior approval may be required if there are any transport or highways, noise and contamination impacts.

## 2.7 Planning Conditions and Obligations

- 2.7.1 Measures required to achieve AQN and AQP, where necessary, will be secured through planning conditions. Conditions may take a number of forms depending on the nature of the development. They may cover the air quality impacts of both the construction and operational phase.
- 2.7.2 The council will not permit a development that defers initial submission of an AQA via a planning condition. This is because air quality might not be sufficiently considered as part of the design process. As such, a subsequent AQA may identify unviable measures to mitigate impacts on or even off-site. Any mitigation measures identified in an AQA will, where necessary, be secured via condition or for financial contributions, through a Section 106 planning obligations.
- 2.7.3 In some cases, it may not be possible to identify appropriate and adequate on-site mitigation measures. Here, the council will agree an offsetting payment as set out in the council's Planning Obligations SPD. The damage cost per tonne of excess emissions should use the most up to date version of the Defra-published damage costs for air pollution. Section 106 and Section 278 agreements can be used to secure financial measures where appropriate.

## Planning Conditions

### **I Design phase:**

- On-site measures outlined in an AQA in cases where the design of the scheme is evolving;
- Off-site implementation of the measures will be secured where development proposal does not meet the benchmarks on-site;
- Details of emission sources included in development e.g. combustion plant or maximum permitted car parking spaces;
- Limiting the operation hours of emergency backup generators;
- Heating plant servicing and maintenance requirement; and
- Where indicative values are used at the application stage, a requirement for final values.

### **J Construction phase:**

- Required to meet the emissions standards of the NRMM Low Emission Zone;
- Required to meet the Demolition Management Plan and Construction Plan;
- Implementation of mitigation measures for dust, such as an Air Quality and Dust Management Plan;
- Restrictions on certain types of construction vehicle emissions;
- Provisions for transporting waste or materials to and from development sites; and
- Real-time dust monitoring.

### **K Operational phase:**

- Provision of a Low Emission Strategy;
- On-site parking provision restrictions;
- Alternative transport provisions, such as car clubs;
- Emissions testing; and
- Travel plans.

## 2.8 Monitoring Requirements

- 2.8.1 The need to monitor PM10 or PM2.5 and NO2 will need to be addressed in the AQA determined on a case-by-case basis. Monitoring will generally depend on existing air quality, the development's air pollution risks, technical practicalities and financial implications.
- 2.8.2 The requirements are to be agreed with the council's Environmental Monitoring Team prior to monitoring taking place. The Code of Construction Practice 2022 and Control of Dust and Emissions during Construction and Demolition SPG provides further monitoring guidance. The SPG splits monitoring recommendations into low, medium and high-risk sites (Chapter 6, Pages 52-54 and Appendix 8, Page 94).
- 2.8.3 Development will where appropriate in most cases, be expected to undertake the post-installation monitoring of emissions. This is to help understand how the development is performing in real life. It can also address the potential for a performance gap between anticipated air quality improvements and post-construction performance. In some cases, this will be used to inform financial contributions to off-site mitigation measures. It can also inform future policy development. Monitoring may be required either as a condition or planning obligation.
- 2.8.4 The BRE offer a post-occupancy evaluation. This can measure, among other things, air quality, allowing for comparisons to be made with both the original design specification, and relevant health-related and environmental standards.

### Monitoring

- L** All demolition and construction sites will be required to monitor air-pollution generation;
- M** Some developments may be required to monitor post construction performance of the air quality mitigation measures;
- N** Exposure assessment may be required;
- O** Emissions tests will be required to ensure that the modelled emission parameters are achieved, with post construction correction if necessary; and
- P** Monitoring of dust, including PM10, will be required for a reasonable period before, during and after the works. For smaller sites this can be simply visual monitoring.

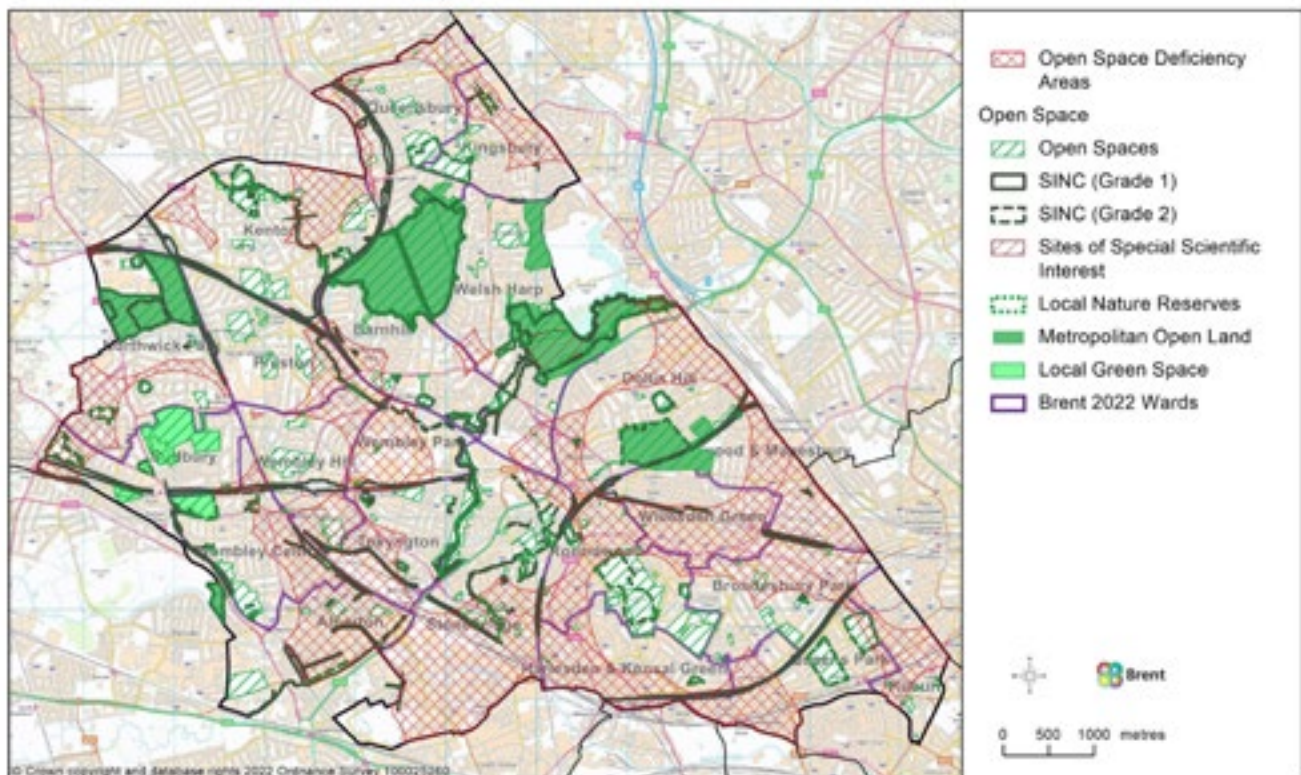
# **3. Green Infrastructure**

## 3.1 Green Infrastructure in Brent

There are a variety of sizes and typologies of open space within the borough. However, in comparison to some areas, there are parts of the borough with a lower percentage of accessible public open space that fall within open space deficiency (see **Map 1**). This is due to existing and projected population growth, a significant variation in open space distribution and also physical barriers to accessibility.

The Brent Local Plan identifies wards with open space deficiency. These open space deficiency wards have been updated to include changes made in 2022 to their boundaries: Alperton, Brondesbury Park, Harlesden & Kensal Green, Kilburn, Cricklewood & Mapesbury, Queens Park, Queensbury, Tokyngton, Wembley Central and Willesden Green. Local Plan Policy BG11 requires major residential developments in these wards to:

- Provide open space on-site,
- For it to be publicly accessible, and
- Cater to various users.



**Map 1: Existing green infrastructure and open space deficiency areas in Brent**

## 3.2 Policy Overview

### **National Policy & Guidance**

NPPF 2021 Chapter 15

Environment Act 2021

Biodiversity Net Gain Implementation guidance

Defra/Natural England Biodiversity Metric

CIRIA Biodiversity Net Gain. Good practice principles for development 2019

Landscape Institute Cities, Green Infrastructure and Health 2015

### **London Plan Policy & Guidance**

London Plan Policy G1 Green infrastructure

London Plan Policy G4 Open space

London Plan Policy G5 Urban greening

London Plan Policy G6 Biodiversity and access to nature

London Plan Policy G7 Trees and woodlands

London Plan Policy G8 Food Growing

London Plan Policy T2 Healthy Streets

London Plan Policy D12 Fire safety

Mayor of London LPG Urban Greening Factor (draft)

Mayor of London LPG Fire Safety (draft)

Mayor of London Urban Greening for Biodiversity Net Gain: A Design Guide 2021

Mayor of London Planning for Biodiversity 2016

Mayor of London Environment Strategy 2021 (draft)

Mayor of London SPG All London Green Grid

GRO The GRO Green Roof Code 2014

CIEEM Biodiversity Net Gain Report and Audit template

TDAG Guides on Trees

Tools: Green Infrastructure Focus Map

Planning data map

Greenspace information for Greater London CIC

### **Local Plan Policy & Guidance**

Brent Local Plan Policy BG11 Green and Blue Infrastructure in Brent

Brent Local Plan Policy BG12 Trees and Woodlands

Brent Biodiversity Action Plan 2007

Brent Open Space, Sports and Recreation Study 2019



- 3.2.1 Green Infrastructure (GI) covers a range of natural assets. It can include public open space, country parks, playing fields, allotments, cemeteries, churchyards, woodlands, trees, wildlife linear corridors/green chains, highways verges, green roofs & walls. It has an important role to play at various scales, in enhancing environmental sustainability.
- 3.2.2 Green assets bring a multitude of improvements to air quality, ecology, health and wellbeing, energy savings, biodiversity conservation, wildlife refuge, microclimate, flood risk, local food production, place shaping, social cohesion, economic value, sport, recreation, play and relaxation. The council aims to support development that delivers green infrastructure that is beneficial to the local environment, increases provision and improves accessibility.
- 3.2.3 The Environment Act 2021 provides the statutory basis for the targets, plans and policies for improving the natural environment. The Mayor of London is looking to publish a new London Environment Strategy that will draw upon all aspects of the existing strategy. This includes achieving a 50% greener London, a 10% increase in tree canopy, enhancing biodiversity, gathering evidence and tools, and providing guidance and policies.
- 3.2.4 To support implementation of the strategy, the following London Plan policies form the basis for GI planning requirements:
- Designated Open Spaces: Policies G1, G2, G3 and G4;
  - Urban greening Factor: Policy G5;
  - Biodiversity Net Gain and access to nature: Policy G6;
  - Protecting trees and woodlands: Policy G7;
  - Food growing: Policy G8; and
  - Fire safety: Policy D12.
- 3.2.5 To embed GI into all new development, Local Plan Policies BGI1 and BGI2 provide the overarching policy approach for the borough's natural environment. These seek to protect, enhance, increase, and manage the multi-functional network of green infrastructure.
- 3.2.6 In applying the policy requirements, consideration will be given to its quality, quantity and functionality as part of the wider green infrastructure network.

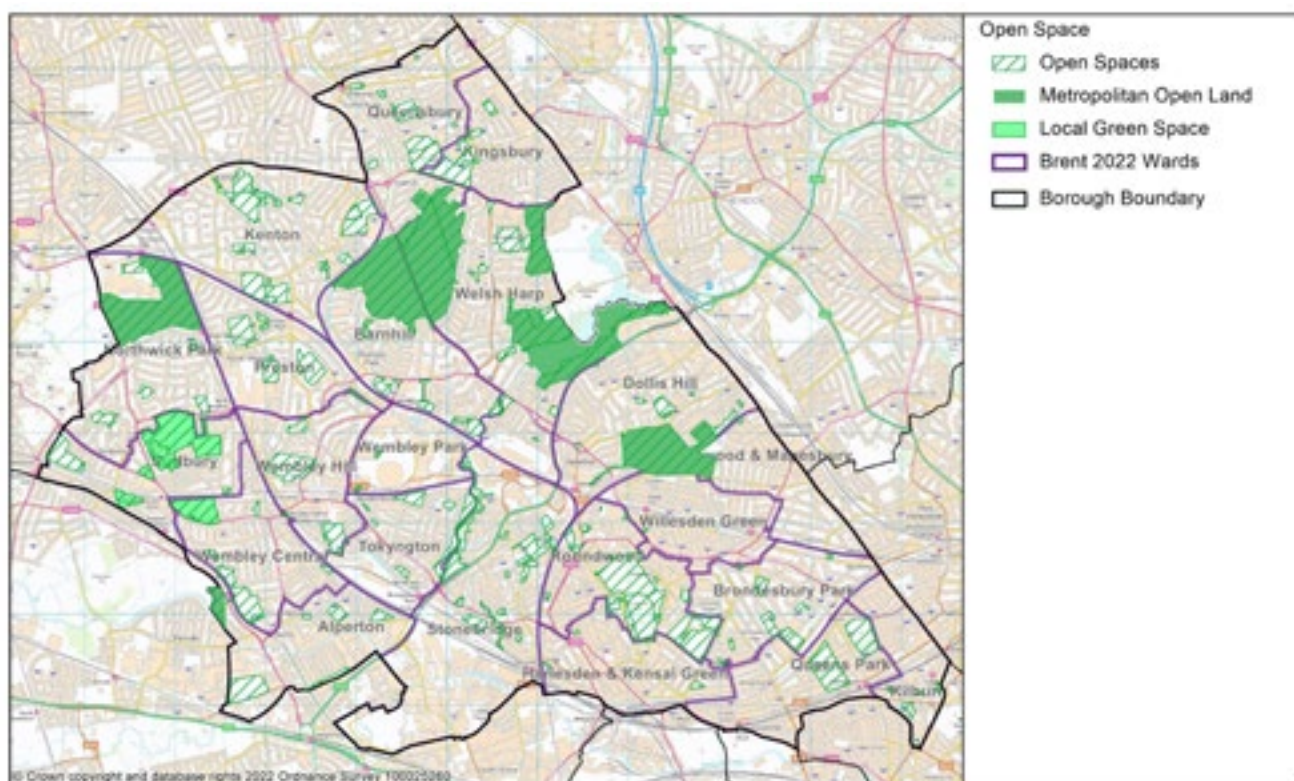
## 3.3 Key Policy Consideration: Designated Open Spaces

- 3.3.1 London Plan Policies G1, G2, G3, G4 and G6 protect London's network of many different forms of green and open spaces.
- 3.3.2 London Plan Policy G4 and Table 8.1 categorise a set of public open space typologies, size guidelines and minimum distance standards as a benchmark. These designated open spaces are identified on the Local Plan Policies Map. Consequently, protection from inappropriate development occurs (see **Table 4** below).

Open space categorisation	Size guidelines	Distances from homes
Regional Parks	400 ha	3.2 to 8 km
Metropolitan Parks	60 ha	3.2 km
District Parks	20 ha	1.2 km
Local Parks and Open Spaces	2 ha	400m
Small Open Spaces	Under 2 ha	Less than 400 metres
Pocket Parks	Under 0.4 ha	Less than 400 metres
Linear Open Spaces	-	-

**Table 4: London Plan Open Space Categorisation**

3.3.3 Local Plan Policy BGI1 requires development to not result in the loss of designated open space, ensure access to nature, and address areas that are deficient in open space. Deficiency is defined as being more than 1km walking distance from a Metropolitan Park or Borough SINIC (Site of Importance for Nature Conservation) and 400m away from an accessible Local Park and Open Space. Policy BGI1 also identifies a list of wards in deficiency and sets out criteria to assess necessary on-site and off-site provision (see **Section 3.10**).



**Map 2: Designated public open spaces in Brent**

## 3.4 Key Policy Consideration: Urban Greening Factor

- 3.4.1 London Plan Policy G5 sets out quality urban greening as a fundamental element of development site and building design. The Urban Greening Factor (UGF) determines the appropriate quantity of greening in a scheme.
- 3.4.2 The method assigns a score to each surface cover type depending on their contribution to natural greening, potential for rainwater infiltration and less intensive management. The type and factor score set out in the London Plan is replicated in **Table 5** below.

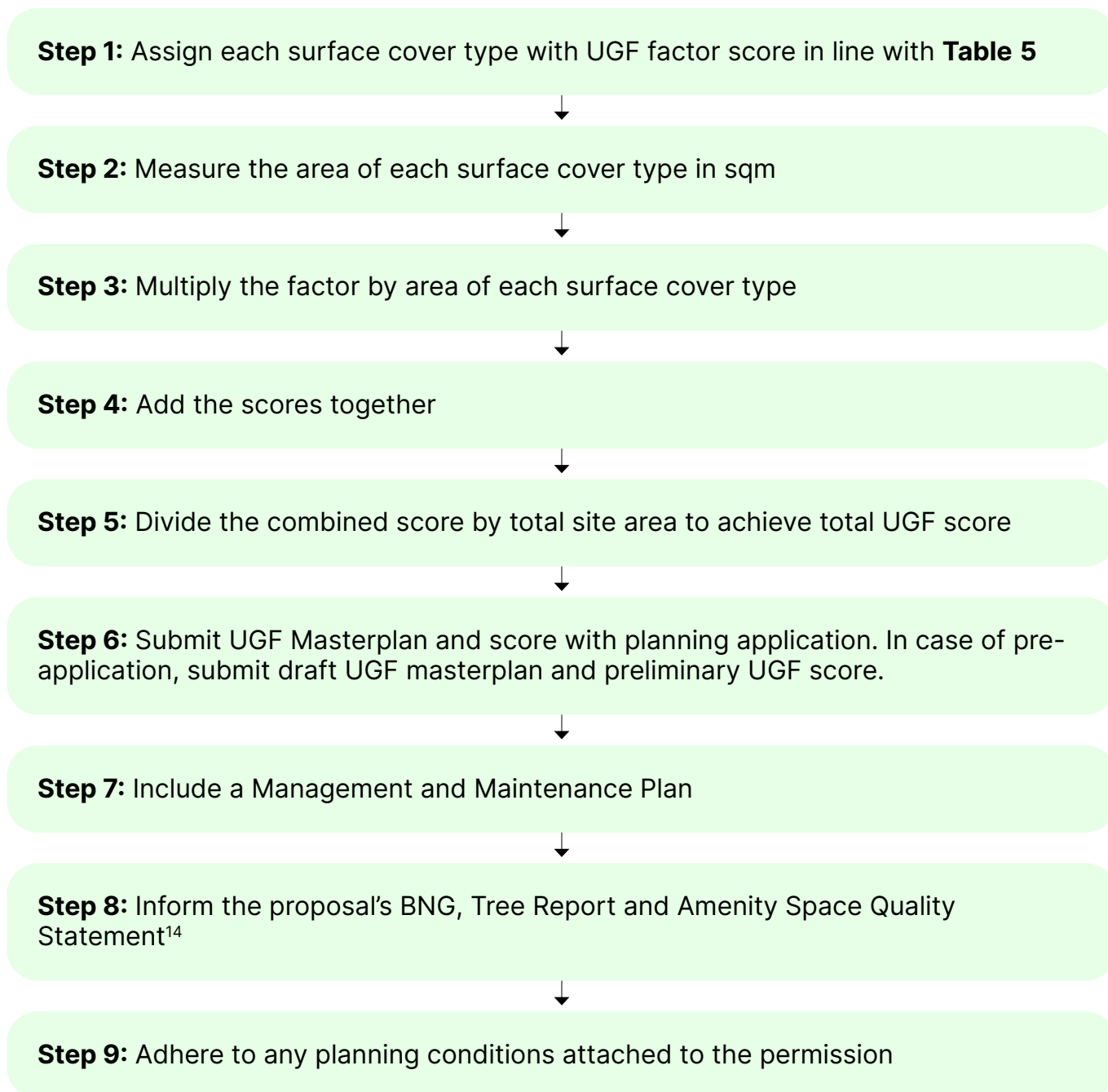
Surface cover type	Factor score	Design considerations
Semi-natural vegetation (e.g. trees, woodland, species-rich grassland) maintained or established on-site	1	Create new areas of locally relevant priority habitat(s)
Wetland or open water (semi-natural; not chlorinated) maintained or established on-site	1	Can form part of a wider SuDS scheme and create new areas of locally relevant priority habitat(s)
Intensive green roof or vegetation over structure. Substrate minimum settled depth of 150mm	0.8	Can create heavy and dense roof cover with orchard/meadow/shrubs to provide for birds. Suitable to sheltered locations
Standard trees planted in connected tree pits with a minimum soil volume equivalent to at least two thirds of the projected canopy area of the mature tree	0.8	Choose species of wildlife value. Avoid up-lighting and place new trees to enhance bat flight-lines
Extensive green roof with substrate of minimum settled depth of 80mm (or 60mm beneath vegetation blanket) – meets the requirements of GRO Code 2014	0.7	Create roofs with open mosaic and provide flower-rich priority habitats. See London Wildlife Trust guide 'A buzz on top'. Tolerant of windswept, exposed locations and low maintenance
Flower-rich perennial planting	0.7	Choose species that are pollinator friendly
Rain gardens and other vegetated sustainable drainage elements.	0.7	Choose ecological design to create valuable habitat as a secondary benefit

Surface cover type	Factor score	Design considerations
Hedges (line of mature shrubs one or two shrubs wide)	0.6	Choose native species for pollinators and other invertebrates, also to provide shelter and foraging resources for birds. Create an ecotone <sup>13</sup> with adjacent grassland or woody vegetation.
Standard trees planted in pits with soil volumes less than two thirds of the projected canopy area of the mature tree	0.6	Choose species of wildlife value. Avoid up-lighting and place new trees to enhance bat flight-lines.
Green wall – modular system or traditional climbers rooted in soil	0.6	Can provide nesting or roosting sites and pollinator-friendly planting. Use rainwater or grey water to irrigate
Groundcover planting	0.5	Choose species of known wildlife value for seasonal biodiversity benefit
Amenity grassland (species-poor, regularly mown lawn)	0.4	Value for invertebrates can be increased by the addition of wildflowers tolerant of regular mowing in lawn turf
Extensive green roof of sedum mat or other lightweight systems that do not meet GRO Code 2014	0.3	Sedums are of value to some pollinators when in flower. Benefit other invertebrates by incorporating log piles, soil mounds and plug plants
Water features (chlorinated) or unplanted detention basins	0.2	Can create SUDs for wildlife friendly alternative design options
Permeable paving	0.1	Minimise where possible
Sealed surfaces (e.g. concrete, asphalt, waterproofing, stone)	0	Minimise where possible

**Table 5: London Plan Open Space Categorisation**

3.4.3 **Calculation:** The GLA has provided an UGF calculator as a tool to assist applicants to calculate the total score of a proposal. The calculation is as follows: (Factor A x Area) + (Factor B x Area) + (Factor C x Area) etc. divided by Total Site Area = Total Score.

3.4.4 The steps of how to calculate are as follows:



**Table 6: UGF methodology**

3.4.5 In providing a UGF masterplan and calculating the UGF score, the following should be considered in line with the draft Urban Greening Factor LPG:

- a) All proposed forms to be measured in sqm;
- b) Retained surface cover type should be included in the calculation;
- c) Vertical surface areas of green walls should not be added to the site's total area;
- d) Where a surface cover type is not included in **Table 5**, a reasonable assumption of the most relevant factor score should be made and recorded on the UGF masterplan;
- e) Green roof area total should include that underneath photovoltaic panels;
- f) In case of mixed planting, the whole planting bed should be assigned to the dominant cover type;
- g) Allotments set aside for food growing should be assigned the equivalent hedges factor score; and
- h) The projected tree canopy is to be measured as the stated maximum by the supplier nursery. For trees planted within the site, it includes any canopy beyond the boundary but not vice-versa.

3.4.6 A combination of policies in the London Plan and Brent Local Plan set the target scores. It is 0.4 for major and minor residential development and 0.3 for commercial buildings. This excludes the B2 and B8 use classes, however, in those cases the council encourages the highest UGF that can be attained. In the case of mixed-use developments, the use class that has the highest square metre floorspace area should determine the target UGF score.

## 3.5 Key Policy Consideration: Biodiversity Net Gain

- 3.5.1 A combination of the Environment Act 2021, London Plan Policy G6 and Local Plan Policy BGI1 set out a mandatory 10% increase in biodiversity in all new major and minor developments. Biodiversity Net Gain (BNG) is a development approach creating an increase in better quality biodiversity compared to what previously existed. This includes all species of wildlife and planting.
- 3.5.2 All developments are encouraged to plan for green infrastructure in a way that complements and co-exists with the existing elements. SINC and ecological corridors already provide high value biodiversity (see **Section 3.6**). However, in order to achieve the increase in biodiversity, London Plan Policy G6 and Local Plan Policy BGI1 set a baseline to protect and conserve priority species and habitats<sup>4</sup> that are outside the SINC and ecological corridors.
- 3.5.3 BNG is achieved by measuring and assessing the existing ecological value and incorporating enhancements. This can be to existing habitat or creating new habitats, both on-site or off-site. Applicants need to demonstrate<sup>5</sup> how a scheme has followed a process for implementing BNG from design to legacy, providing consistency at every level. Appointing an ecological consultant at an early stage of the project is advised.
- 3.5.4 The key components of demonstrating mandatory BNG during the planning process are:

**Step 1:** Carry out Ecology Survey Stage 1: Preliminary Ecological Appraisal (PEA) is a baseline survey



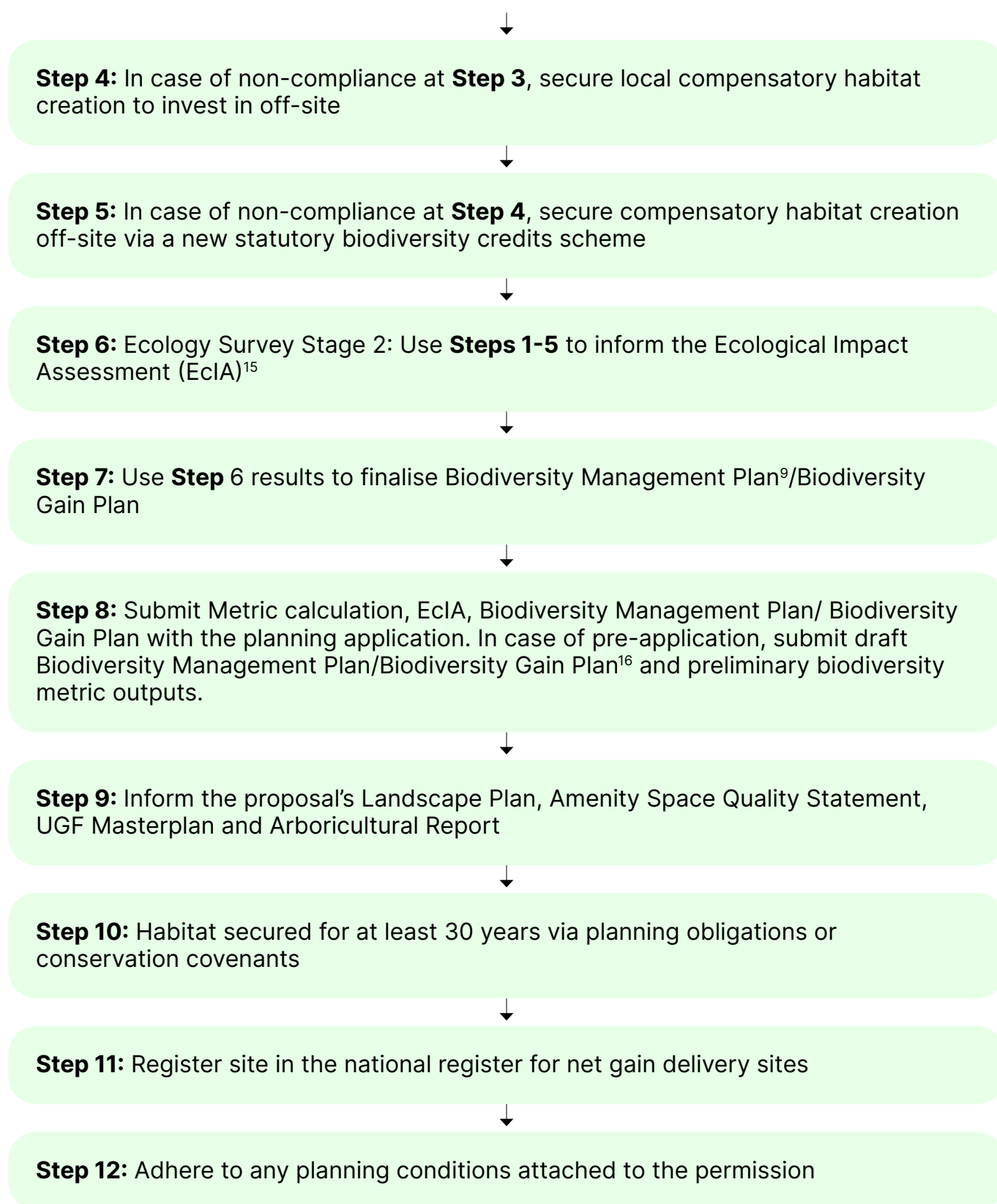
**Step 2:** Inform 10% BNG by using Defra's Biodiversity Metric (major applications) and Small Sites Metric (minor applications)



**Step 3:** Where possible, on-site habitat damage should be avoided, loss should be minimised and damage restored with an increase in biodiversity on-site







**Table 7: BNG methodology**

3.5.5 Avoiding harm to biodiversity assets will always be the preferred approach. It is expected that applicants demonstrate they have explored the mitigation hierarchy. This involves:

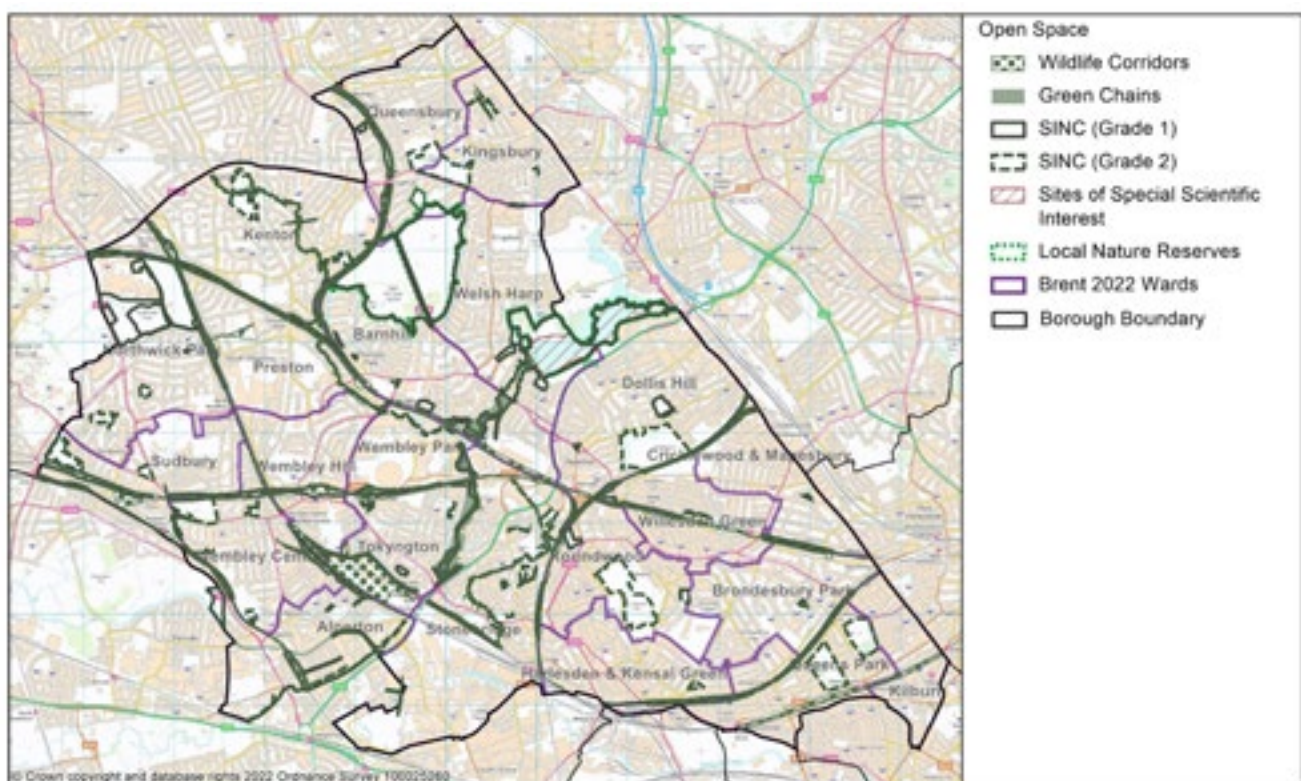
- a) Retaining habitat(s) on-site;
- b) Mitigating loss on-site; and
- c) Where necessary, proposing off-site compensatory measures delivered in ascending order of priority:
  - Nearby;
  - Within the borough;
  - Within London; or
  - Adjacent to London.

3.5.6 In addressing biodiversity, an EcIA, Biodiversity Management Plan/ Biodiversity Gain Plan<sup>6</sup> and calculations of the Metric, the following information should be considered in line with Defra's draft BNG guidance:

- a) Summary of Preliminary Ecological Appraisal (PEA) baseline survey;
- b) Biodiversity metric calculations detailing pre-development and post-development biodiversity value;
- c) Steps taken towards the mitigation hierarchy and alternative layouts;
- d) Approaches to enhancements on-site/off-site;
- e) Any off-site gains or statutory biodiversity credits purchased;
- f) Considering the direct and indirect impacts of proposed development;
- g) If pre-application ecology survey stages identify that further survey(s) are required, these must be submitted with the application;
- h) Bringing together all habitat enhancement on-site while meeting other policy requirement of UGF and trees;
- i) Timescales for habitat creation, management, monitoring and reporting to the council; and
- j) Evidence with the application from a suitably qualified person if there are no protected species or priority habitats present on-site.

## 3.6 Key Policy Consideration: SINCs and Green Chains

- 3.6.1 The Wildlife & Countryside Act 1981 underpins nature conservation areas with biodiversity or geological value with statutory protection. **Map 3** shows Sites of Special Scientific Interest (SSSI) and Local Nature Reserves in Brent.
- 3.6.2 There are also non-statutory local sites that are afforded a high level of protection through the NPPF and the London Plan due to the presence of priority habitats and species. This includes SINC (Grade I and II).
- 3.6.3 For the parts of green corridors outside SINCs, a lower level of protection is recommended. A green corridor, also referred to as green chain, habitat corridor or wildlife corridor is a linear natural habitat connecting the urban environment. It allows movement of wildlife. Common examples are along railway embankments, riverbanks and roadside verges.
- 3.6.4 Protection guards it against harm from new development. It also places a duty on the applicant to undertake an appropriate assessment.



**Map 3: Statutory and non-statutory sites protected in Brent**

3.6.5 London Plan Policy G6 and Local Plan Policy BGI1 recognise that there are many opportunities for new developments to contribute to enhancing the nature conservation value of adjacent SINC or green corridors. Developments in the immediate vicinity (Zone of Influence) of SINC and ecological corridors are required to establish connections to support associated species.

3.6.6 The Brent Sites of Importance and Nature Conservation Study (2014) identifies high value sites and suitable enhancements that can be brought forward by developments. In an urban context, these measures can include:

- a) Providing a buffer zone between SINC and built-up areas;
- b) Avoiding surface water-run off directly into the SINC;
- c) Sympathetic landscaping to provide complementary habitat;
- d) Installation of artificial nest sites, installation of swift nesting bricks and integral nest boxes;<sup>7</sup>
- e) Bat boxes in the vicinity of SINC, where there are corridors connecting the site to the SINC;
- f) Ponds on sites or suitable amphibian habitats in the vicinity of SINC;
- g) Green roofs suitable for Black Redstarts;
- h) Green walls suitable for nesting, or nest boxes, for bird/bats/bees, whilst native grass and herbs can provide food for butterflies and moths;
- i) Planting of Bee Swards instead of amenity grassland;
- j) Landscape planting using nectar rich species; and
- k) Designing out obtrusive lighting.

## 3.7 Key Policy Consideration: Trees and Woodlands

- 3.7.1 Trees play an important role in mitigating the effects of air pollution and flooding. They add value to amenity space and reduce the urban heat island effect. London Plan Policy G7 protects London's urban forest and woodlands. Similar to Local Plan Policy BGI2, it requires new developments maximise efforts to retain existing trees of value. The majority of Brent's existing tree stock is on private land. There are however, a significant number of trees owned and directly managed by the council in parks, woodlands, streets, housing estates (under Brent Housing Management (BHM)), cemeteries and allotments.
- 3.7.2 The council uses its powers under Section 197 of the Planning Act 1990 to apply Tree Preservation Orders (TPOs) to protect trees. In Brent, such Orders are not ordinarily put on every tree with a high amenity value. A TPO is usually only made where the council considers that a tree or group of trees may without the Order be under threat of loss or inappropriate pruning. A tree with a TPO cannot be wilfully damaged nor without the council's permission managed by pruning.
- 3.7.3 Trees on privately-owned land not covered by a TPO or outside a conservation area do not require permission to either be felled or for other works. However, where the council is aware such work is likely to occur to trees which it considers have a high amenity value, it may seek to make a TPO to require the tree's owner to seek consent.
- 3.7.4 Existing trees on private land are encouraged to be retained as part of new development. Trees that exist on or adjacent to a development site are considered to be a material consideration where planning permission is required. In such cases, the following key components should be followed during the planning process:

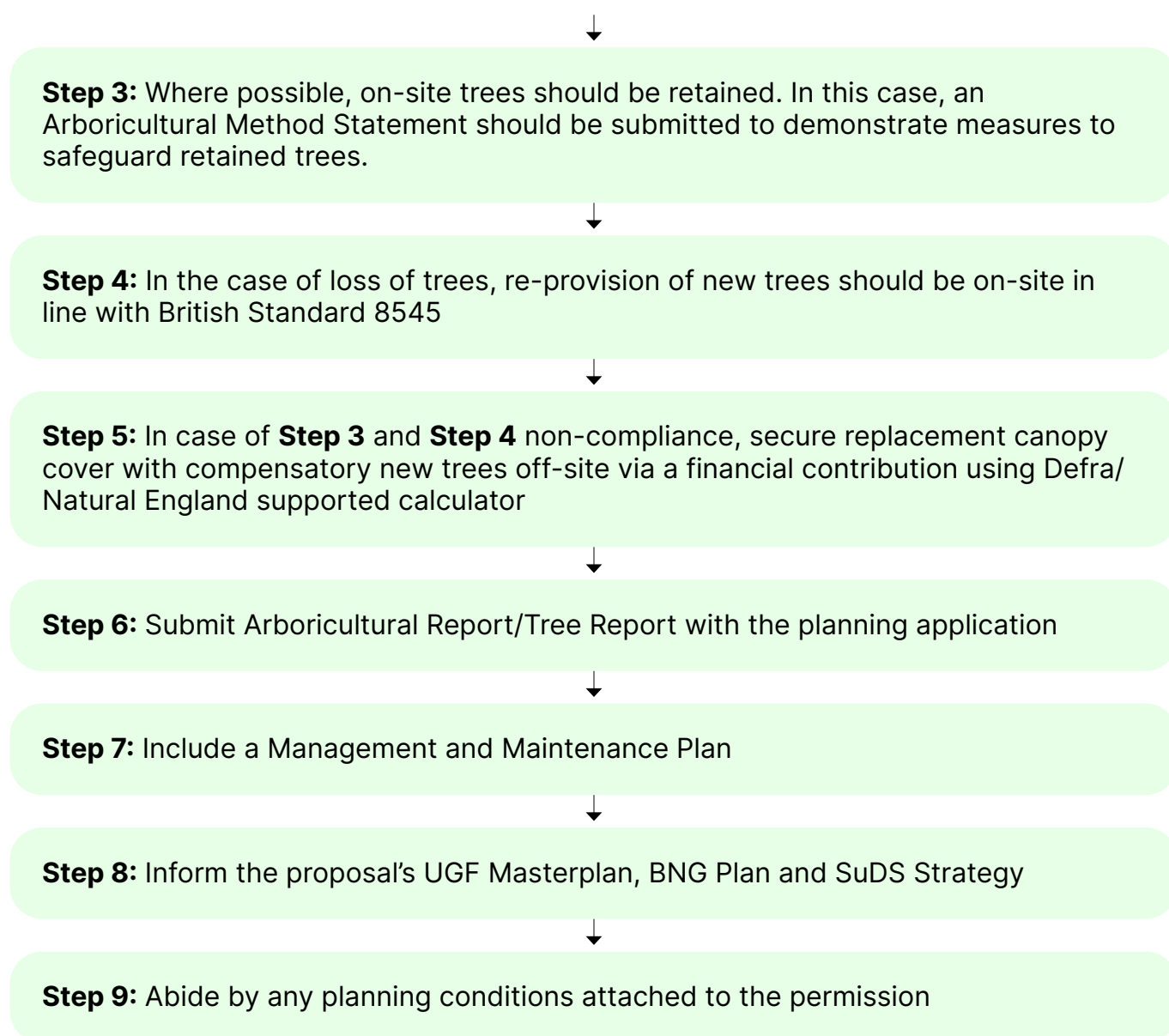
**Step 1:** Carry out Arboricultural Impact Assessment (AIA)/Tree Survey in line with British Standard 5837



**Step 2:** Recommendations of survey inform retention or retention and new tree(s) or new tree(s)



Sustainable Environment & Development SPD



**Table 8: Tree planting methodology**

3.7.5	In case of any damage or unapproved loss of a tree(s) on-site, replacement with an appropriate tree(s) will be required. This must aim to provide the same canopy cover as that originally provided. The canopy cover is measured as the new trees canopy at time of planting being equal to canopy area of existing trees canopy removed.
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- 3.7.6 Where new trees are being proposed, it is essential that the design of a new development considers:
- a) Right species,<sup>8</sup> right location, right reason and right tree for a changing climate;<sup>9</sup>
  - b) Growth over time to ensure tree roots, branches and canopies won't cause any future issues;
  - c) Realistic assessment of the current and future relationships between the existing trees and new structures;
  - d) Potential impact of the tree canopy shading and avoiding situations where dense shading could be a safety problem;
  - e) Problems, such as soakaways liable to becoming blocked, e.g. through roots or leaf drop;
  - f) Creating connected tree pits using cell systems with shrubs under tree canopies to create structure;
  - g) Selecting plants that root at different depths to limit competition between species; and
  - h) Tree protection and maintenance.
- 3.7.7 Where proposing retention of existing trees, careful consideration is essential to preserve the tree's integrity and its environment by avoiding:
- a) Damage during construction such as vehicle cohesion and root severance;
  - b) Indirect factors such as changes to ground level, trenching and compaction of soil and contamination; and
  - c) Hard surfaces within the Root Protection Area (RPAs) of retained trees hindering soil water and nutrient absorption.
- 3.7.8 Given the above considerations, the Arboricultural Report should include the following information:
- a) Tree Survey Plan showing every tree location to scale;
  - b) Tree Quality Assessment/Schedule showing: every tree's species name, recording TPO, height, stem diameter, branch spread, age (young, semi-mature, mature, over-mature, veteran), documenting health, preliminary management recommendations, remaining useful life of the tree and categorise the tree for removal or retention, taking into account all the relevant factors; and
  - c) Tree Constraints Plan showing position and crown spread, RPA, Future Growth Potential and shade footprint throughout the day.

## 3.8

# Key Policy Consideration: Food Growing

- 3.8.1 The Allotments Act 1922, London Plan Policy G8 and the supporting London Food Strategy protects allotments. Policy G8 and the Strategy focus on the importance of food growing in community gardens, allotments, schools, urban farms and other development spaces. Policy G8 also encourages urban agriculture space provision in new developments and as a meanwhile use on vacant or under-utilised sites.
- 3.8.2 Urban agriculture is the practice of cultivating, processing and exchanging food in and around urban areas. This can be divided into two types:
- 1) Traditional urban agriculture involves small scale growing of vegetables and fruits consumed by landowners/leaseholders. This could be an allotment, local community garden, school garden, garden centre or on a development;
  - 2) Contemporary urban agriculture involves high-tech intensive growing, relying upon controlled environments on private land. The produce comes from various cultivation methods of vertical farming, green wall/roofs, mycelium farming, hydroponics, aquaponics, and is for specialist markets, local and specialist restaurants.
- 3.8.3 Food growing opportunities bring many cross-cutting benefits. These include improved food security, education, biodiversity, social interaction and mental and physical health well-being. The Mayor highlights support of the London Capital Growth Network. They offer a gardens map tool, a food growing guide and harvest-ometer, tracking capital food savings.
- 3.8.4 Brent has 22 statutory allotments sites. These currently have at least a one to two year waiting list. In some cases, it can be up to five years.<sup>10</sup> The council has an overall responsibility for the allotments service management. However, given future demand, developers should demonstrate a clear approach to establish food growing opportunities in new major developments. Provision can also be a meanwhile use on vacant and underutilised land.
- 3.8.5 Brent has 49 independent food growing sites<sup>11</sup> that are short-term non-statutory sites. The Local Plan (para 6.6.22) seeks food-growing opportunities in new major residential developments. It also encourages creation of new plots for food growing on major development sites where possible.



- 3.8.6 Provision for food growing or new allotment sites should address the following specific considerations:<sup>12</sup>
- a) Site location: spatially well connected, safe walking routes, accessibility for disabled, vehicular access for contemporary urban agriculture sites;
  - b) Site functionality: utilities such as cost-effective water supply, electricity, drainage, waste management, soil composting, soil formation to support seeding and gestation, socially integrated and accessible for community food exchange and knowledge transfer;
  - c) Land security: tenancy agreements to include length of tenure, recognition of a responsible party to take ownership, obligations to maintain the plot clean, keep it free from weeds, in a good fertile state and cultivated regularly;
  - d) Foodscaping: increasing tree canopy and cover by integrating urban orchards and fruit growing shrubs;
  - e) Site management: Appoint site representatives, enforce non-cultivation criteria and offer advice to tenants;
  - f) Explore creative opportunities: such as vertical farming and greenhousing and local business partnerships; and
  - g) Encourage allotment uptake: a seasonal local food source, and potentially organic, supporting an active lifestyle, encouraging composting of green waste and offering lower cost dietary benefits.
- 3.8.7 Provision for food growing opportunities should be shown on the Landscape Plan. Depending on the scale of the proposal, details should be addressed in a Food Growing Statement or a Design & Access Statement. Signposting opportunities in the Amenity Space Quality Statement will be encouraged.

## 3.9 Planning to Mitigate Impacts on Green Infrastructure

- 3.9.1 In assessing planning applications that may impact green infrastructure, the council will have regard to the Environment Act 2021, NPPF, London Plan and Local Plan. Other guidance will include LPGs, local strategies, SPD1 Design Guide and this SPD. Provision of new open spaces should:
- a) Involve experts, considering green infrastructure at the early design process;
  - b) Be appropriately designed to be accessible, safe, connected, visual impact, usable and integrated into the development site;
  - c) Enhance biodiversity by considering micro-climatic conditions, creating a mosaic of interconnected habitats;
  - d) Be integrated into adjacent existing green infrastructure networks and landscape buffer zones;
  - e) Establish a functional and climate-resilient landscape, reducing irrigation, energy input and intensive management needs;
  - f) Delivered to instil a sense of local community ownership and responsibility; and
  - g) Include a suitable long-term Management and Maintenance Plan.
- 3.9.2 The following assessments and their evidence base will be required depending on the key policy considerations and application type as outlined in Sections 3.2 to 3.8:
- **UGF Masterplan**
    - UGF score calculation and surface area type
  - **Ecology Survey**
    - Preliminary Ecological Appraisal
    - Ecological Impact Assessment
  - **Biodiversity Management Plan/Biodiversity Gain Plan**
    - BNG metric or Small Sites Metric calculation
  - **Arboricultural Report**
    - Arboricultural Impact Assessment (AIA)/Tree Survey
    - Arboricultural Method Statement
  - **Landscape Plan**
  - **Amenity Space Quality Statement** (see the emerging Residential Amenity Space and Place Quality SPD)
  - **Management and Maintenance Plan**

- 3.9.3 In addressing the key policy considerations, all supporting evidence including calculations, surveys, mitigation hierarchy, justifications, timetables for habitat creation, maintenance, monitoring and reporting must be submitted to the council.
- 3.9.4 The borough offers a wide range of green infrastructure networks. Notwithstanding this, there are network gaps and considerable opportunities in new development proposals to address this, expanding the offer and focus in areas that do not meet the standards in terms of quality and accessibility.
- 3.9.5 Landscape architects and ecologists should be engaged from the design processes start. This will likely better meet Local Plan Policy BG11 open space requirements, delivering valuable greening. Housing typologies will integrate greening beneficial to occupiers, ensure appropriate responses to meeting greening priorities, recognise site-specific constraints and develop a suitable Management and Maintenance Plan.
- 3.9.6 The Management and Maintenance Plan should consider identifying:
- Responsibilities for on-site management and upkeep of green infrastructure assets;
  - Any planned occupier service charge;
  - An equipment storeroom;
  - Methods to inspire occupier interest in ownership of the green space; and
  - Council adoption, which will be subject to agreement and a suitable commuted sum secured for ongoing maintenance.

## 3.10 Development Management

3.10.1 The following section aims to provide a clear and consistent approach for stakeholders to meet the borough's greening priorities. At each planning application stage, the following will be required:

- **Phased development:** Each phase should demonstrate through relevant assessments compliance with the key policy considerations. All assessments to include calculations for the development as a whole and additional table showing calculations for all phases.
- **Outline applications:** All assessments to include an 'Implementation Plan' explaining how the key policy considerations will be secured at the detailed design and application stage. Planning conditions may secure revision to assessments as part of a Reserved Matters application in regard to a change in layout, transport or energy strategy.
- **Pre-applications:** Preliminary UGF calculation and draft masterplan, Preliminary Ecological Appraisal (PEA), draft Biodiversity Management Plan/Biodiversity Gain Plan and preliminary biodiversity metric outputs and Arboricultural Impact Assessment (AIA)/Tree Survey, Preliminary Amenity Space Quality Statement.
- **Full applications:** UGF Masterplan, EcIA, Biodiversity Management Plan/Biodiversity Gain Plan, Arboricultural Report, Landscape Plan, Food Growing Statement, Management and Maintenance Plan and Amenity Space Quality Statement.

3.10.2 The planning requirements for each type of proposed development are listed in tables below. These set out measures for:

**Major Development**

**Minor Development**

**Change of use**

**Permitted Development**

### Major Development

- A** Growth Areas: development should deliver open space specifications in line with the relevant policies in the Local Plan or Masterplan SPD;
- B** Open space deficiency areas: development should maximise provision on-site;
- C** Elsewhere, development should provide open space on-site. An exception would be a Local Area of Play (LAP) if one is within 400m by a direct and safe walking route;
- D** Avoid loss of open space. In cases where this is avoidable, off-site compensation site should be provided;
- E** Within a SINC or green corridor's Zone of Influence, should consider enhancing its biodiversity;
- F** Achieve 0.4 UGF for residential schemes and 0.3 UGF for commercial schemes;
- G** Deliver 10% increase on existing biodiversity and incorporate measures listed in **para 3.5.6**;
- H** Consider providing food growing opportunities;
- I** Provide trees in line with the mitigation hierarchy.

### Minor Development

- J** Maximise open space on-site;
- K** Within a SINC or green corridor Zone of Influence should consider enhancing that adjacent asset's biodiversity;
- L** Achieve 0.4 UGF for residential schemes;

## Minor Development *(continued)*

**M** Deliver 10% increase in existing biodiversity;

**N** Provide trees on-site.

## Change of Use

**O** Must provide replacement for trees lost on or off-site;

**P** Consider improvement and integration of green infrastructure.

## Permitted Development

**Q** For residential extensions, decking, sheds/annexes and driveways where green infrastructure is lost, provide compensatory measures elsewhere on-site e.g. green roofs/walls, enhanced planting and alternative surface water attenuation.

## 3.11 Planning Conditions and Obligations

- 3.11.1 Planning conditions will where necessary secure green infrastructure measures. Conditions may take a number of forms depending on the nature of the development and the policy requirement triggers. In the case of a financial contribution, this will be through a Section 106 planning obligation.
- 3.11.2 Where appropriate and adequate mitigation measures on-site cannot be delivered, the council will agree an offsetting payment. The council's Planning Obligations SPD sets out the contribution methodology.
- 3.11.3 Section 106 and Section 278 agreements can be used to secure financial measures where appropriate.

### Planning Conditions

#### **R** Design phase:

- On-site measures outlined in assessments in cases where the design of the scheme is evolving;
- Off-site measures will be secured where requirements are not met on-site;
- Contribution to improve an existing open space's quality and/ or accessibility;
- Management and maintenance requirement;
- Ensuring commitments in approved Biodiversity Management Plan/Gains Plan;
- Proof of conservation covenant for BNG; and
- If indicative values are used at the application stage, final values will be required pre-implementation.

#### **S** Construction phase:

- Required to meet the mitigation measures identified in the approved assessments to avoid harm to green infrastructure asset on-site and in Zone of Influence;

#### **T** Operational phase:

- Management and maintenance.

## 3.12 Monitoring Requirements

- 3.12.1 Monitoring will be required as listed in the table below. This is to prevent a performance gap and quantify proposed green infrastructure assets. Additional monitoring will be determined on a case-by-case basis and will need to be addressed in the assessments. This will generally depend on the type of planning application, existing green infrastructure assets on and around the site, risks from the development, and financial implications of such monitoring.
- 3.12.2 The data recorded will assist the council to inform the annual AMR (Authority Monitoring Report).

### Monitoring

- U** All developments should record the UGF scores in the London Planning Datahub;
- V** All BNG proposals will be required to monitor the performance for 30 years; and
- W** Report any loss of Category A Tree Preservation Order trees.



# **4. Water Management**

## 4.1 Water Management in Brent

Brent's existing Blue Ribbon Network (London's strategic network of water spaces) includes the River Brent, the Grand Union Canal (Paddington Arm), Brent Reservoir, Wealdstone Brook, Brent Feeder Canal and Dollis Brook. Water quality is "moderate" status in all waterbodies.

The Brent Catchment Partnership (BCP) is made up of a number of organisations working collectively to improve the rivers, brooks, streams, lakes and canals in order to make them more accessible, attractive, and cleaner. The BCP's objective is water quality in the Brent catchment having a "good" ability to support wildlife by 2027.



**Map 4: Brent Catchment Area and River Brent tributaries in the borough**

- 4.1.1 Historically, Brent has had a low to moderate flood risk. Climate change is however, expected to increase the frequency and severity of flood events. In Brent, surface water/pluvial flooding, river flooding, sewer and groundwater flooding are all significant considerations. Surface water flood risk is higher, however confluence and gradient, ageing drainage infrastructure and population growth pressure is further increasing risks.
- 4.1.2 Sewer flooding is uncommon, but is generally higher in the borough's north than south. Relatively limited flooding has occurred from main rivers and watercourses. Notwithstanding this, areas next to these watercourses form part of a natural floodplain resulting at risk of fluvial flooding.
- 4.1.3 The West London SFRA provides interactive maps. These show flood risk sources within Brent and their extent, including a description of the different types of flooding. There are four fluvial Flood Zones:
- **Zone 1:** Low probability (less than a one in 1,000 annual probability in any year)
  - **Zone 2:** Medium probability (between a one in 100 and one in 1,000 annual probability in any year)
  - **Zone 3a:** High probability (a one in 100 or greater probability)
  - **Zone 3b:** Functional floodplain – where water flows or is stored in times of flood (a one in 30 or greater in any year probability).

## 4.2 Policy Overview

### National Policy & Guidance

The Flood Risk Regulations 2009

The Flood and Water Management Act 2010

The Water Environment Regulations 2017

The Environment Act 2021

NPPF Paras 152, 153, 159-169, Annex 3: Flood risk vulnerability classification

Planning Practice Guidance: Flood Risk and Coastal Change; Flood risk assessment in Flood Zones 2 and 3; Flood risk assessment in Flood Zone 1 and critical drainage areas; Review individual flood risk assessments: standing advice for local planning authorities; The sequential test for applicants; and Water supply, wastewater and water quality

### London Plan Policy & Guidance

London Plan Policy SI 5 – Water Infrastructure

London Plan Policy SI 12 – Flood Risk Management

London Plan Policy SI 13 – Sustainable Drainage

London Plan Policy SI 16 – Waterways – use and enjoyment

London Plan Policy SI 17 – Protecting and enhancing London's waterways

The London Environment Strategy

The Brent Catchment Partnership River Improvement Action Plan

Thames River Basin District River Basin Management Plan

The London Sustainable Drainage Pro Forma

### Local Plan Policy & Guidance

Brent Local Plan Policy BSUI1 – Creating a resilient and efficient Brent

Brent Local Plan Policy BSUI3 – Managing Flood Risk

Brent Local Plan Policy BSUI4 – On site water management and surface water attenuation

Brent Local Plan Policy BGI1 – Green and Blue Infrastructure in Brent

Brent Flood Risk Management Strategy (2015)

Brent Surface Water Management Plan (2011)

West London Strategic Flood Risk Assessment

- 4.2.1 Water is a renewable resource that needs to be well-managed. This will eliminate water shortages, avoid harm to properties caused by flooding and drainage issues, inadequate sanitation, control wastewater discharge and maintain the ecosystem. Water management is the planning of water, in terms of both quality and quantity. This includes:

- a) Managing water efficiently (see **Section 4.3**);
- b) Minimising damage to life and property (see **Section 4.4**); and
- c) Maximising blue infrastructure benefits (see **Section 4.5**)

- 4.2.2 The Environment Act 2021 provides a statutory basis for the targets, plans and policies for improving the natural environment. The Water Environment (Water Framework Directive) 2017 regulations also aim to prevent deterioration of water quality and to improve water quality.
- 4.2.3 Through the Flood Risk Regulations 2009 and the Flood and Water Management Act 2010, powers and responsibilities were given to local authorities to manage flood risk more effectively. Brent Council is the Lead Local Flood Authority (LLFA) for the borough of Brent. The Act (2010) also identifies “risk management authorities” – bodies with an interest in flood risk management. In line with the above, the NPPF and associated planning practice guidance (PPG) sets strict tests to protect people and property from flooding, and advocates an “assess - avoid - manage and mitigate” approach to flood risk.
- 4.2.4 In line with the NPPF and PPG on utilising a risk-based approach to flooding and managing flood risk from all sources, the West London boroughs have produced a joint Level 1 Strategic Flood Risk Assessment (SFRA). This aims to provide the platform to deliver the LLFA requirements of the 2009 Regulations and 2010 Act. As a LLFA, Brent Council has also produced a Flood Risk Management Strategy (2015) and Surface Water Management Plan (2011).
- 4.2.5 The GLA has published the London Environment Strategy (2018). This identifies Flood Risk, Water Scarcity and River Water Quality as environmental challenges facing London, threatening the future of the city.
- 4.2.6 The London Plan also sets out water-related strategic policies for London: Policy SI 5 Water Infrastructure, SI12 Flood Risk Management, SI13 Sustainable Drainage, SI14 Waterways – strategic role, SI16 Waterways – use and enjoyment and SI17 Protecting and enhancing London Waterways.
- 4.2.7 In the local context of Brent, the Local Plan sets out water management and blue infrastructure enhancement policies: BG11 Green and Blue Infrastructure in Brent, BSUI3 Managing Flood risk and BSUI4 On-site water management and surface water attenuation. The policies seek to maximise blue infrastructure benefits, increase water efficiency and ensure that development in the borough is resistant and resilient to all sources of flooding for its lifetime. It is also key to consider all types of users of development, ensure that proposals tackle residual flood and do not increase flood risk elsewhere.
- 4.2.8 The below table summarises risks of types of floods in Brent, respective Flood Zone categorisation and useful resources:

Flood risk type	Flood Zone	Resources	Notes
Fluvial and Tidal	Flood Zone 1,2,3a,3b	<u>Fluvial and Tidal flood risk map (West London strategic flood risk assessment)</u>	Risk from River Brent and its tributaries (Grand Union Canal, Mitchell Brook, Wealdstone Brook and Wembley Brook). There may be very low risk of reservoir flooding should there be a rare case of a breach at the Brent Reservoir
Pluvial/Surface Water	Flood Zone 3a <sup>19</sup>	<u>Surface water flood risk map (West London strategic flood risk assessment)</u>	West London SFRA sets out that same rules will be applied to Flood Zone 3a (surface water) as those that apply to Flood Zone 3a (fluvial).
Groundwater	No flood risk maps - contact LLFA for further information	<u>Topography mapping</u> <u>Geology Mapping - borehole data</u> <u>Groundwater flood risk map (West London strategic flood risk assessment)</u>	Topography mapping: information regarding gradient layered with the groundwater mapping.  Geology mapping: ascertain if the site has a particularly high or low water table.
Sewer	No flood risk maps	<u>DiGDAT</u> <u>Sewer flood risk map (West London strategic flood risk assessment)</u>	Information with Thames Water infrastructure within Brent for external pipe works where development proposes to discharge water.
Critical Drainage Area	27 critical drainage areas	Notified to the council by the Environment Agency	Existing infrastructure at risk from multiple flood risk sources

**Table 9: Types of flood risk in Brent**

- 4.2.9 Water supply in Brent is managed by two companies (Affinity Water in the north, and Thames Water in the south), roughly split by the North Circular Road.
- 4.2.10 The Environment Agency (EA) are responsible for water quality and resources in England. The PPG provides standing advice on when they should be consulted on planning applications. Early discussions with the Environment Agency are strongly recommended for proposals within the functional floodplain.
- 4.2.11 The Canal and River Trust (CRT) are responsible for canals and the Brent Reservoir. The CRT website provides guidance on when they should be consulted on development proposals.
- 4.2.12 For development within Flood Zone 3 for surface water flooding, the applicant will be expected to have undertaken dialogue with the council's Lead Local Flood Authority (LLFA) representative prior to submission of an application.

## 4.3 Key Policy Consideration: Water Efficiency

- 4.3.1 London Plan Policy SI 5 encourages water efficiency by requiring developments to:
- a) Reduce water consumption; and
  - b) Improve and invest in water consumption.

### Reducing Water Consumption

- 4.3.2 Policy SI 5 encourages water efficiency measures across all development, such as smart metering, water saving and recycling measures. This can also apply to retrofitting of existing buildings.
- 4.3.3 A fittings-based approach is advocated to calculate water-consumption. Fittings include white goods such as washing machines and dishwashers, but also sanitary fittings such as taps, toilets and showers. Building Regulations Part G provides a breakdown of the maximum consumption per water fitting in the home. This should be used to calculate the water efficiency per head of each home being proposed.
- 4.3.4 For major commercial development, Policy SI 5 requires proposals to meet at least BREEAM excellent standard for the 'Wat 01' Water Category or equivalent. This standard aims to ensure not only efficient sanitary fittings, but also provision of water recycling systems and rainwater collection.
- 4.3.5 For residential development, the policy expects development to minimise mains water consumption to 105 litres or less per head per day (excluding up to five litres for external water consumption). This is in line with the optional requirement of Building Regulations Part G.
- 4.3.6 Waterwise provides information on how water usage can be minimised through a wide range of examples of fittings and practices. Development proposals (major, minor and change of use) will need to address this in a Drainage Strategy.



## Improving and Investing in Water Infrastructure

- 4.3.7 Policy SI 5 requires development to seek to improve the water environment and ensure adequate wastewater and water supply infrastructure is provided for ahead of need.
- 4.3.8 It also requires the minimisation of misconnections between foul and surface water networks. Misconnections are one of the causes of foul sewage flooding into homes and gardens which can also have an impact on river water quality.
- 4.3.9 Where relevant, proposal for major developments will be required by Thames Water through appropriate studies to demonstrate that there is adequate capacity both on and off site to serve their proposal, and that the proposal would not lead to problems by existing users.
- 4.3.10 Development proposals (major, minor and change of use) will be required to submit a Drainage Strategy in relation to the above.

## 4.4 Key Policy Consideration: Minimising Risks from Flooding

- 4.4.1 The NPPF, London Plan Policies SI 12 and SI 13, and Local Plan Policy BSUI3 requires all development to be resistant and resilient to all sources of flooding. Where relevant, developments will be required to submit various assessments and evidence to demonstrate (see **Section 4.6**):
  - a) Avoidance of flood risk area through careful selection of site and assessment;
  - b) Maximise measures to control, manage and mitigate flood risk;
  - c) Integrate inclusive human and structural safety implications;
  - d) Consider the residual risk remaining after mitigation actions are taken;
  - e) Flooding is not increased elsewhere due to development; and
  - f) Use of sustainable drainage systems in line with drainage hierarchy.

### Key Flood Mitigation Measures

- 4.4.2 Some of the key measures to take into consideration for all types of flood risks are listed below. The list is not exhaustive, but a starting point for more innovative ideas:
  - a) Assess risks utilising existing flood mapping, undertaking flood risk modelling, areas acting as floodplain and its depth;

- b) Assess development impact for associated change to storage/flow route function of the land surrounding the proposed building;
- c) Determine type of uses proposed against vulnerability classification;
- d) Determine development approach through careful consideration of building footprint and its placement;
- e) Use flood resistant construction methods<sup>17</sup> and materials that promote easy draining and drying;
- f) The ground level finished floor levels of at least 300mm above the design flood level of the Flood Zone;
- g) Install power outlets up the wall;
- h) Ensure water tightness with continuous damp proof membrane and floor to wall joints;
  - i) Suspended floors;
  - j) Ensure one safe access evacuation;
- k) Avoid new basement dwellings in areas of high risk flooding;
  - l) Make proper provision for surface water drainage into the ground, water courses or surface water sewers;
- m) Consider main drainage system to have non-return valve and pump sewerage systems;
- n) Development proposals should avoid any interference in existing watercourses which is likely to increase the risk of blockage, erosion, or other disruption of their natural flow pattern, including culverting, pipe crossings, encroachment into watercourses;
- o) Ensure that infrastructure remains safe and operational for building occupiers during flood periods;
- p) Adopt land management practices to improve water infiltration;
- q) Impermeable surfacing.

## **Sustainable Drainage Systems**

- 4.4.3 The NPPF requires all major development and all other developments in areas of flood risk to utilise Sustainable Drainage Systems or SuDS. Multifunctional SuDS should be integrated into the design of the proposal at early stages to ensure that surface water run-off is managed as close to where it falls. Impermeable surfacing will be resisted on front gardens and driveways in line with the Brent Design Guide SPD1.
- 4.4.4 London Plan Policy SI 13 and Local Plan Policy BSUI4 places great weight on development achieving greenfield run-off rates<sup>18</sup> through SuDS. This can be through rainwater storage, infiltration, attenuation or discharge. Policy SI 13 sets out a drainage hierarchy in preference for green features that increase infiltration and facilitate rain harvesting over grey features (such as increasing drainage capacity).
- 4.4.5 In some circumstances, a development may include more than one stage of the drainage hierarchy:

**Stage 1:** Rainwater use as a resource

**Stage 2:** Rainwater infiltration to ground at or close to source e.g. soakaways, permeable paving, bioretention/tree pits

**Stage 3:** Rainwater attenuation in green infrastructure features for gradual release e.g. green roofs/walls, water features, underground tanks

**Stage 4:** Rainwater discharge direct to a watercourse (unless not appropriate)

**Stage 5:** Controlled rainwater discharge to a surface water sewer or drain

**Stage 6:** Controlled rainwater discharge to a combined sewer

#### **Table 10: Drainage hierarchy**

- 4.4.6 Development will be required to demonstrate its discharge arrangements within a Drainage Strategy, including showing how run-off rates have been achieved. The SuDS attenuation rates calculation will need to be confirmed with the LLFA to ensure that the infrastructure size demonstrated is correct.
- 4.4.7 Examples of SuDS measures are green roofs, rainwater harvesting, soakaways, permeable paving, bioretention/tree pits. The SuDS manual provides technical advice to assist in the planning, design, construction, management and maintenance of good SuDS.
- 4.4.8 The utilisation of SuDS can deliver multiple benefits and is closely related to carbon storage, re-use, water quality, biodiversity, urban greening, amenity and recreation. Drainage solutions should therefore be an integrated element of a site's green infrastructure and considered alongside **Chapter 3** of this SPD and the emerging Residential Amenity Space and Place Quality SPD.

## 4.5

# Key Policy Consideration: Maximising Blue Infrastructure Benefits

- 4.5.1 The London Plan (para 9.1.14) identifies London's waterways as multifunctional assets. In addition to providing drainage, flood management and urban cooling functions, they also provide transport and recreation corridors, green infrastructure, diverse habitats, community and recreational activities, and homes for some Londoners.
- 4.5.2 London Plan Policy SI 5 states that the Water Framework Directive requirements should be maintained by the relevant river catchment plans. The BCP has produced an Improvement Plan to support the improvement of cleanliness, accessibility and attractiveness of the catchment's watercourses.

### Naturalisation

- 4.5.3 London Plan Policy SI 17 supports development proposals which will restore rivers, including naturalisation. Local Plan Policy BGI1 also requires developments adjacent to the Blue Ribbon Network and other tributaries or waterways to contribute towards restoration and naturalisation of waterways.
- 4.5.4 In addition, Local Plan Policy BSUI3 seeks opportunities from the redevelopment of the functional floodplain to restore natural function and flood storage capacity. Restoring the natural function of the waterways will also bring biodiversity benefits and habitat enhancement.
- 4.5.5 London's waterways also provide community and recreational activities. In support of this, Local Plan Policy BGI1 requires all developments adjacent to the Blue Ribbon Network to improve access to the waterways, enhance its setting and provide an appropriate landscaped set-back.
- 4.5.6 In line with the EA's access requirement (Environmental Permitting (England and Wales) (Amendment) (No2) Regulations 2016), a minimum 8m set back will be required from certain developments near all rivers or tributaries. A permit may be required to secure access for maintenance and improvements such as re-naturalisation of riverbanks and habitat improvements.

## Water Quality

- 4.5.7 The Brent Catchment Plan identifies opportunities for river restoration and water quality enhancement projects in support of the Thames River Basin Management Plan. Proposals located alongside waterways should consider how such projects and objectives can be supported and delivered in accordance with Local Plan Policy BGI1.
- 4.5.8 When considering opportunities to enhance water quality, the naturalisation of waterways, and the use of waterways for community and recreational activities, regard should be given to urban greening and supporting biodiversity in accordance with Local Plan Policy BGI1 and **Chapter 3** of this SPD.

## 4.6 Planning to Mitigate Impacts on Water Management

- 4.6.1 In assessing planning applications that impact on the management of water, the council will have regard to policies in the NPPF and relevant planning guidance, the London Plan and the Brent Local Plan. Other guidance will include relevant LPGs, Brent's Flood Management Strategy and Drainage Strategy, and this SPD.
- 4.6.2 The extent of detail required in supporting documents will depend on the scale, nature and location of the proposed development. The following assessments and their evidence base will be required depending on the type of development in specific Flood Zones outlined in (West London strategic flood risk assessment):
- Flood Risk Assessment (FRA);
  - The Sequential and Exceptions Test;
  - Drainage Strategy/Drainage Plan;
  - A Water Efficiency Assessment;
  - Water Quality Statement; and/or
  - Other assessments: Land Contamination Assessment and Demolition and Demolition and Construction Management Plan.

# Mitigation Measures

4.6.3 Major and minor developments, and change of use applications should incorporate the below measures, where relevant and proportionate to the scale of development:

- a) Adjacent to the Blue Ribbon Network should improve access to the waterway, enhance its setting, provide an appropriate landscaped set-back, contribute to restoration and naturalisation, enhance water quality and biodiversity in accordance with the objectives of the Water Framework Directive and Thames River Basin Management Plan;
- b) Protect and enhance existing moorings;
- c) Achieve mains water consumption of 105 litres or less per person per day for residential development and commercial development to achieve at least BREEAM excellent standard for the 'Wat 01' water category or equivalent;
- d) Incorporate water efficiency measures;
- e) Assess – avoid – manage and mitigate flood risk over the lifetime of the development;
- f) Minimise risk of flooding based on Flood Zone categorisation, including allowance for climate change flood level;
- g) Address residual flood risk and not increase the risk of flooding elsewhere;
- h) Adhere to flood risk vulnerability classification, ensure dry means of escape and achieve appropriate finished floor levels;
- i) Redevelopment of sites in functional floodplain (Flood Zone 3b) to restore the natural function and storage capacity of the floodplain;
- j) Adjacent to flood defences must protect the integrity of flood defences;
- k) Where relevant, apply sequential test and pass the exceptions tests to ensure development is steered to areas with the lowest probability of flooding;
- l) Use appropriate SuDS to control the rate and volume of surface water run-off;
- m) Ensure separation of surface and foul water systems;
- n) Make reasonable provision for the safe storage and passage of flood water in excessive events;
- o) Minimise misconnections between foul and surface water networks;
- p) Achieve greenfield run-off rates and ensure that surface water management in accordance with the drainage hierarchy;
- q) Ensure adequate wastewater infrastructure capacity is provided;
- r) Adequate arrangements for long-term management and maintenance of the measures used.

## Flood Risk Assessment (FRA)

- 4.6.4 The council will assess FRAs having regard to the West London SFRA. The following development proposals will be required to submit a FRA:
- a) Major, minor and change of use in Flood Zone 2 or 3;
  - b) More than one hectare (ha) in Flood Zone 1;
  - c) Major, minor and change of use in less than 1 ha in Flood Zone 1 proposing to a more vulnerable class and where they could be affected by sources of flooding other than rivers and sea (such as surface water drains, reservoirs);
  - d) Major, minor and change of use in a critical drainage area;
  - e) Risk of groundwater flooding and sewer surcharge/capacity issues.
- 4.6.5 For developments of less than 1 ha (10,000m<sup>2</sup>) the level of detail required in an acceptable FRA will depend on the size and density of build. It should include the risk of flooding from all sources of flooding, information obtained from the EA, water company or sewerage undertaker, other relevant statutory authorities, site investigation and recommended mitigation measures.
- 4.6.6 Applicants should utilise the West London SFRA Flood Risk Assessment Submission Checklist to ensure that all mandatory requirements have been met within their FRA. This is in addition to checking whether their proposed site has already been assessed within Brent's Strategic Flood Risk Assessment Level 2. If it has, the findings of the relevant site assessments (including mitigation requirements and planning conditions) within the SFRA Level 2 Appendix B must be referred to and addressed within their FRA, and through the design of the proposal.
- 4.6.7 Applicants should also check whether their site has been considered within Brent's Sequential and Exception Test (September 2020), in particular Figure 4, to ascertain whether parts of the exception test (if eligible) need to be demonstrated within a site specific FRA.
- 4.6.8 Mitigation measures will be considered by site basis depending on its circumstances and FRA conclusions. For relevant sites, mitigations identified within Brent's SFRA Level 2 must be utilised.
- 4.6.9 Climate change allowances for peak river flow and rainfall intensity will be expected to be included in FRAs. The PPG outlines which allowances should be used, including floodplain storage compensation. Defra have produced an interactive map that shows visually which climate change allowances should be used. The West London SFRA maps also show various climate change scenarios in relation to peak river flows (a 1 in 100 year probability event, plus various percentage increases in peak river flow).

## The Sequential and Exceptions Test

- 4.6.10 The Sequential and Exception test will direct development towards areas at lowest risk of flooding.
- 4.6.11 The sequential test is required if:
- a) Proposed development is in Flood Zone 2 or 3; and
  - b) A sequential test hasn't already been done for a development of the type you plan to carry out on your proposed site (e.g. through the Sequential and Exceptions Test 2020 to support the Local Plan).
- 4.6.12 The exception test is required if the sequential test has shown that it isn't possible to use an alternative site, and your development is:
- a) Highly vulnerable and in Flood Zone 2;
  - b) Essential infrastructure in Flood Zone 3a or 3b; or
  - c) More vulnerable in Flood Zone 3a.
- 4.6.13 The sequential test has already been carried out for Site Allocations and Intensification Corridors within the Local Plan. Some of these sites/corridors will still be required to show that the exception test has been passed.
- 4.6.14 The exception test requires applicants to show how flood risk will be managed on the proposed site, how sustainability benefits of the site outweigh the flood risk, how development will be safe for its lifetime taking into account the vulnerability of users and that it will not increase flood risk elsewhere.
- 4.6.15 Applicants should refer to Figure 4 of Brent's Sequential and Exception Test (September 2020) to be clear on which parts of the exception test need to be demonstrated within a site specific FRA. Applicants may also refer to the Integrated Impact Assessment of the Brent Local Plan to identify wider sustainability benefits of their site.
- 4.6.16 For proposals that are not within Local Plan Site Allocations and therefore require a sequential test, the PPG provides information on how the sequential test (and exception test, if required) should be carried out. There is a degree of local discretion and applicants should agree the relevant search parameters and area of search with the council at pre-application stage using the methodology summarised below:



**Step 1:** Identify parameters of the proposal and the site. These will define whether other reasonably available sites would be appropriate for this proposal. For example: number of dwellings, density / capacity, whether a development of this type is specifically required to be in this location (e.g. a school or a doctors' surgery requiring a particular catchment area, or another local need), any other relevant information on choosing this particular site



**Step 2:** Produce a map and a clear description and justification of the area of search. e.g. growth areas, town centres, the whole borough



**Step 3:** Provide an explanation or justification of any other search parameters e.g. size/capacity



**Step 4:** Review of alternative sites identified within the area of search, including analysis on whether site is suitable or unsuitable, available or unavailable, and the level of flood risk



**Step 5:** If there are no reasonably available alternative sites, the sequential test has been passed

## **Table 11: Sequential test methodology**

### **Drainage Strategy / Drainage Plan**

- 4.6.17 A Drainage Strategy/Drainage Plan will be required for all major, minor and change of use developments. All minor developments and change of use which modify existing surface water drainage will also require a Drainage Strategy. Applicants should utilise the West London SFRA Drainage Strategy Submission Checklist to ensure that all mandatory requirements have been met. This includes demonstrating the feasibility of each stage of the drainage hierarchy. Ground investigations may be required to confirm whether infiltration based SuDS are suitable.
- 4.6.18 If the proposal will not meet greenfield run-off rates then this must be justified within the strategy. SuDS calculations will be checked by the local authority using the Greenfield Runoff Rate Estimation Tool.
- 4.6.19 DiGDAT Sewer Mapping provides information on all Thames Water infrastructure within Brent and will be used to check external pipe works that proposals will be discharging to.

- 4.6.20 Applicants should check whether their proposed site has been assessed within Brent's Strategic Flood Risk Assessment Level 2. If so, the findings of the relevant site assessments (including mitigation requirements and planning conditions) within the SFRA Level 2 Appendix B should be referred to and addressed within the drainage strategy and through the design of the proposal.

### **Water Efficiency Assessment**

- 4.6.21 This evidences that the development will meet the target of 105 litres or less per head per day, excluding up to 5 litres for external water use, will be required for all proposals for residential development and commercial development.

### **Water Quality Statement**

- 4.6.22 This is required where proposals involve physical modifications to a water body, and/or indirectly affect water bodies. Where relevant, the applicant should be able to explain how the proposed development would affect the relevant water body and how they propose to mitigate the impacts.
- 4.6.23 Applicants will be expected to mitigate impacts by contributing to the delivery of the emerging Thames River Basin Management Plan. If it is likely that the proposal would have a significant adverse impact on water quality then the assessment should form part of the Environmental Statement associated with the application and a more detailed assessment will be required. The PPG outlines the likely components of a more detailed assessment.

### **Land Contamination Assessment**

- 4.6.24 This is required where the site has been identified as being at risk of contamination or development is proposed in close proximity to a potentially contaminated site. Where there is potential for water quality to be affected, this should be considered and addressed and appropriate mitigation measures proposed.

### **Demolition and Construction Management Plan**

- 4.6.25 This may be required to minimise and mitigate against environmental impacts that may arise from development such as accidental pollution events and explain how surface water will be managed during construction.

## 4.7 Development Management

4.7.1 The following section aims to provide a clear and consistent approach for stakeholders to meet the borough's priorities in relation to water management. At each planning application stage, the following will be required:

- **Phased development:** Each phase should demonstrate through relevant assessments, compliance with the key policy considerations;
- **Outline applications:** All assessments to include an 'Implementation Plan' explaining how the key policy considerations will be secured at the detailed design and application stage. Planning conditions may secure revision to assessments as part of a Reserved Matters application;
- **Pre-applications:** Where relevant, early discussion with the Environment Agency/LLFA/Affinity Water/Thames Water/Canal and River Trust, a preliminary Flood Risk Assessment and Preliminary Drainage Strategy, Water Efficiency Strategy;
- **Full applications:** Where relevant, FRA, Drainage Strategy/Drainage Plan, Sequential and Exception Test, Water Efficiency Assessment, Water Quality Statement, Land Contamination Assessment, Construction Environmental Management Plan.

4.7.2 The planning mitigations for each type of proposed development are listed in the tables below. These set out measures for:

### Major Development

### Minor Development

### Change of Use

### Permitted Development

## Major Development

- A** Address flood risks depending on site's Flood Zone and appropriate mitigation measures set out in a FRA;
- B** Where relevant, apply Sequential and Exceptions tests;
- C** Adjacent to flood defences, development should protect their integrity;
- D** Adjacent to the Blue Ribbon Network be appropriately designed and incorporate measures;
- E** Follow the drainage hierarchy;
- F** Achieve water efficiency standards for residential development and non-residential development;
- G** Provision of SuDS;
- H** Separate and minimise misconnections of surface and foul water systems;
- I** Achieve greenfield run-off rates;
- J** Submit FRA, Drainage Strategy/Plan, Water Efficiency Assessment, Water Quality Statement, Management and Maintenance Plan of the measures used;
- K** Based on site investigation, submit supporting documents such as Land Contamination Assessment and Demolition and Construction Management Plan.

## Minor Development

- L** As above (A-K) where relevant and proportionate to the scale of development;
- M** Make use of sustainable drainage measures wherever feasible and ensure separation of surface and foul water systems, to be shown in a Drainage Plan.

## Change of Use

- N** As above (A-K) where relevant and proportionate to the scale of development;
- O** Make use of sustainable drainage measures wherever feasible and ensure separation of surface and foul water systems, to be shown in a Drainage Plan.

## Change of Use

- P** Prior Approval will be required to assess flood risk and contamination impacts;
- Q** If resulting in the creation of 10 or more residential dwellings, Thames Water or Affinity Water will need to be consulted to ensure no negative impacts on sewer capacity and water pressure.

## 4.8 Planning Conditions and Obligations

- 4.8.1 Measures in relation to the management of water may be secured through planning conditions. Conditions may take a number of forms depending on the nature of the development and the policy requirement triggers and the list below is not exhaustive.
- 4.8.2 Statutory consultees such as the Environment Agency, Canal and River Trust and the Lead Local Flood Authority may request conditions to be attached to permissions.

### Planning Obligations

#### **R** Design phase:

- Where development may have an impact on the ecology of the Grand Union Canal and River Brent, prior to commencement, a CEMP including demolition plan, how surface water will be managed during construction, and pollution prevention and response plan to be submitted and approved;
- Where there are clean or waste water infrastructure concerns, development not to commence until strategies detailing on and / or off site works have been submitted and approved by the LPA in consultation with Thames Water. Phasing conditions may be applied if applicable;
- Where development may have an impact on the ecology of the Grand Union Canal and River Brent, prior to commencement, full details of proposed landscaping to be submitted and approved to ensure the character of the canal/river is maintained and to maximise biodiversity benefits;
- Ensure that any necessary off site flood storage compensation has been secured.

#### **S** Construction phase:

- For sites that require off-site upgrades to water and waste water infrastructure capacity, occupation to be aligned with the delivery of necessary infrastructure upgrades. Phasing conditions may be applied if applicable;
- Adherence to any measures outlined in the FRA and or CEMP.

## Planning Obligations (continued)

### **T** Operational phase:

- Arrangements to be in place for the ongoing maintenance of SuDS over the lifetime of the development;
- Mains water consumption not to exceed 105 litres per person per day (excluding an allowance of up to five litres for external water consumption), using a fittings-based approach to determine the water consumption of the development in accordance with requirement G2 of Schedule 1 to Building Regulations Part G;
- Safe access and egress to be maintained throughout the lifetime of the development.

## 4.9 Monitoring Requirements

- 4.9.1 The need to monitor water management will be determined on a case-by-case basis and will generally depend on risks from the development (for example, flood risk or water quality).

### Monitoring

- U** Performance of attenuation/water retention measures to ensure no overland diversion to the surface water network;
- V** Performance of pollution separation systems.

# **5. Energy**



## 5.1 Policy Overview

### National Policy & Guidance

NPPF Paras 148, 151, 152, 153 and 154

DLUHC The Future Building Standards 2021 (draft)

BEIS Energy efficiency: Building towards net zero 2019

UKGBC The New Homes Policy Playbook 2021

RIBA Sustainable Outcomes Guide 2019

Good Homes Alliance

### London Plan Policy & Guidance

London Plan Policy GG6 Increasing efficiency and resilience

London Plan Policy SI 2 Minimising greenhouse gas emissions

London Plan Policy SI 3 Energy infrastructure

London Plan Policy SI 4 Managing heat risk

Mayor of London LPG Energy Assessment Guidance 2022

Mayor of London LPG Carbon Emissions Reporting Spreadsheet 2022

Mayor of London LPG 'Be Seen' Energy Monitoring Guidance

Mayor of London LPG Whole Life-Cycle Carbon Assessments 2020

Mayor of London LPG Circular Economy Statement Guidance

LETI Climate Emergency Design Guide

RTPI and TCPA The climate crisis – A guide for Local Authorities on Planning for Climate change

RICS Whole life carbon assessment for the built environment 1st edition, November, 2017

### Local Plan Policy & Guidance

Brent Local Plan Policy BSUI1 Creating a resilient and efficient Brent

Brent Climate and Ecological Emergency Strategy 2021

Brent Climate Resilience and Adaptation Plan 2022

5.1.1 The Climate Change Act 2008 establishes a legally binding target to reduce the UK's greenhouse gas emissions to net zero by 2050. Consequently, climate change mitigation has become one of the top duties of the planning legislation. The mitigation hierarchy of achieving a net zero carbon home involves:<sup>20</sup>

- a) Reducing energy demand by optimising the efficiency of the building fabric;
- b) Reducing embodied carbon by driving down the carbon impacts related to product and construction stages;

- c) Low or zero carbon energy supply by encouraging on-site generation of low carbon heat and hot water;
- d) Measuring and verifying in-use performance by closing the gap between modelled and actual energy performance; and
- e) Addressing the shortfall in achieving net zero carbon emission through off-site mitigation.

- 5.1.2 The government is introducing the Future Homes Standard (new dwellings) and Future Building Standards (non-domestic buildings) to increase energy efficiency requirements by 2025. It sets reduction targets and prioritises a fabric first approach to ensure high thermal performance of the building envelope. The Future Homes and Building Standards complements the Building Regulations that set the statutory requirements for buildings including energy.
- 5.1.3 In June 2022, updates to Building Regulations Part L (Conservation of fuel and power) and Part F (Ventilation) came into effect, as well as a new Part O (Overheating).
- 5.1.4 To comply with the net zero carbon target for London, London Plan Policy SI 2 requires all major developments to maximise on-site carbon reductions by following the energy hierarchy. The GLA's Energy Assessment Guidance provides guidance on how Policy SI 2 should be applied.
- 5.1.5 The council, in line with Policy SI 2's energy hierarchy, prioritises developments that adopt passive design principles and a fabric first approach. Once the design and fabric of new development has minimised the energy needed for heating, cooling and power, the residual energy should be supplied as efficiently as possible using the energy hierarchy.
- 5.1.6 Local Plan Policy BSUI1 Creating a Resilient and Efficient Brent focuses on more specific local requirements to support Policy SI 2. It requires the establishment of District Heating Networks (DHNs) within the Growth Areas of Neasden Stations, Northwick Park and Staples Corner. New major development in the remaining Growth Areas (Alperton, Burnt Oak & Colindale, Church End, South Kilburn and Wembley Park) will be expected to develop DHNs depending on the size and location of the proposal.
- 5.1.7 In addition, Policy BSUI1 requires all major developments to connect to a DHN. In cases where this is not feasible, in the first instance there will be a requirement to contribute towards the establishment of a DHN. If demonstrated that such provisions are not achievable, the heating systems will need to be 100% renewable energy technology.
- 5.1.8 The Brent Local Plan encourages all minor developments to maximise sustainable measures, including renewable energy generation, reducing overheating and providing efficient cooling. Passive design principles and fabric first approach can be beneficial and reduce operational costs in the long run.

## 5.2 Key Policy Consideration: Energy Hierarchy

5.2.1 Central to policy requirements is the hierarchical approach to supplying energy efficiently to reduce associated carbon emissions. The energy hierarchy 'Be Lean, Be Clean, Be Green and Be Seen', as set out in London Plan Policy SI 2 is a sequence of steps that outline ways to achieve zero carbon emissions. Each step should be accurately assessed by an accredited energy assessor and demonstrated in supporting documents.

5.2.2 The following energy hierarchy requirement is set for all major developments and strongly encouraged for minor developments:

### **Be Lean: Minimise Energy Demand**

5.2.3 The design of buildings can play a significant role in reducing overall energy demand. This is achieved through improved performance through fabric first measures and incorporating passive design principles.

5.2.4 **Table 12** and **Table 13** list the passive principles and fabric first approach that developments should consider.

5.2.5 In addition to 'fabric first', passive principles (see **Table 12**) are standards devised in Europe (formally known as PassivHaus/Passive House) that are considered the pinnacle of a sustainable building. This methodology ensures minimal heating loads and maximises passive solar whilst minimising overheating. The methodology also considers indoor air quality. Using passive principles are key to reducing energy demand in the first instance.<sup>21</sup> It reduces heating and cooling to a minimum whilst creating high air quality. Passive principles should be fully utilised before active systems<sup>22</sup> and energy saving technology is explored. In order to maximise the benefits of passive principles, these need to be considered at the early stages of design.

5.2.6 Proposals should demonstrate compliance with targets using a calculation methodology such as SAP (Standard Assessment Procedure) or PHPP (Passivhaus Planning Package) for residential development. Proposals for non-residential developments should utilise one of the approved NCM (National Calculation Methodology) depending on the building type. These will assist in evaluating operational energy use at design stage.

5.2.7 This step should be in line with the performance targets for major developments. In accordance with the GLA's Energy Assessment Guidance, residential developments should achieve at least a 10% improvement and non-residential developments at least a 15% improvement over Building Regulations Part L for fabric measures alone. The methodology for this is set out in the GLA guidance.

- 5.2.8 Major non-residential developments are also required to achieve a BREEAM rating of Excellent. BREEAM must be considered early in the design process to maximise the score. BREEAM includes mandatory minimum energy targets in order to achieve an 'Excellent' rating.

<b>Passive principles</b> relate to internal and external location, orientation and design to reduce energy consumption		
<b>No.</b>	<b>Key objective</b>	<b>Key considerations</b>
1	Site layout and relationship between buildings and adjacent uses	<ul style="list-style-type: none"> <li>• Maximise the potential for passive solar gain whilst avoiding excessive solar gain in the summer;</li> <li>• Avoid the over-shadowing of the solar orientation of buildings;</li> <li>• Use landform and landscape to provide shelter to minimise heat losses in winter and adequate solar shading in summer;</li> </ul>
2	Building orientation and form	<ul style="list-style-type: none"> <li>• Minimise heating, lighting and cooling demands by use of building axis and building form;</li> <li>• Consider building use and solar gain demand from residential and non-residential;</li> <li>• Avoid overheating in summer through design approaches such as eave design to allow shading or use of green infrastructure;</li> </ul>
3	Provide thermal mass and storage	<ul style="list-style-type: none"> <li>• Consider materials that have a capacity to absorb and store heat and ultimately release it when it is cooler;</li> </ul>
4	Provision of natural ventilation	<ul style="list-style-type: none"> <li>• Enable the flow of external air to an indoor space as a result of pressure or temperature differences;</li> </ul>
5	Planting and soft landscaping	<ul style="list-style-type: none"> <li>• Include vegetation, trees, green roofs, green walls.</li> </ul>

**Table 12: List of passive principles**

<b>'Fabric first' approach</b> relates to the components and materials that make up the building fabric that need to reduce energy waste		
<b>No.</b>	<b>Key objective</b>	<b>Key considerations</b>
1	Continuous insulation	<ul style="list-style-type: none"> <li>Insulating material that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior or exterior or is integral to any opaque surface of the building envelope;</li> </ul>
2	Avoid thermal bridging	<ul style="list-style-type: none"> <li>Reduce heat loss through wall joints and material;</li> </ul>
3	Airtightness	<ul style="list-style-type: none"> <li>Airtight envelope to be draught-free through minimising gaps in the fabric by sealing joints and gaps around windows and door frames meeting airtightness targets;<sup>28</sup></li> </ul>
4	Ventilation and air permeability	<ul style="list-style-type: none"> <li>Reducing air permeability through controlled ventilation to minimise build-up moisture, other pollutants and provide clean filtered air;</li> <li>Mix of natural and mechanical ventilation with heat recovery system;</li> </ul>
5	Energy efficiency	<ul style="list-style-type: none"> <li>Energy efficient lighting and appliances.</li> </ul>

**Table 13: 'Fabric first' approach**

### **Be Clean: Supply Energy Efficiently**

- 5.2.9 This stage requires developers to supply energy efficiently including consideration of heating and cooling. This step will have to demonstrate connection (or provision for future connection) to heating networks. This is achieved through the use of communal heating systems where a district heat network is not currently available.
- 5.2.10 Proposals will need to include future proofing measures unless it has been demonstrated that it is not feasible and viable to do so. The provision has to be in line with the heating hierarchy (see **Section 5.5**) as set out in London Plan Policy SI 3 and the cooling hierarchy set out in London Plan Policy SI 4 (see **Section 5.6**).

5.2.11 Developments should consider their Be Clean strategy following this hierarchy:

- a) Connect to a local existing or planned heat network. Where there is an existing network, new developments should prioritise connection provided that:
  - The network does not exceed the CO<sub>2</sub> emission and primary energy factor limits set out in Building Regulations Part L; and
  - The network operator has agreed a decarbonisation strategy with the GLA and the relevant borough, or is in the process of doing so;
- b) Use zero-emission and/or local secondary heat sources (in conjunction with heat pump, if required);
- c) Use low emissions combined heat and power (CHP) – only where this is to enable the delivery of an area-wide heat network. To date, gas-engine CHP has been the primary technology for facilitating the development of district heat networks due to its high efficiency and better carbon performance compared to electrical systems utilising grid electricity. However, the rapid decarbonisation of the electricity grid means that technologies generating on-site electricity (such as gas-engine CHP) will not achieve the carbon savings they have to date. There are also growing air quality concerns associated with combustion-based systems;
- d) Use ultra-low NO<sub>x</sub> gas boilers - a heating strategy led by ultra-low NO<sub>x</sub> gas boilers should only be considered where it can be clearly demonstrated that all of the above options (a to c) have been fully investigated and ruled out with sufficient evidence provided.

### **Be Green: Use of Renewable Energy and Technologies**

5.2.12 This stage requires developers to supply the residual energy through incorporation of technology that obtains energy from renewable sources. The electricity producing technology include wind (wind turbines), water (hydro-electricity) or sun (solar panels or photovoltaic). Heat producing technology includes Air Source Heat Pumps (ASHP), Ground Source Heat Pumps (GSHP) and Biomass fuelled boilers.

5.2.13 For heat producing technologies which require non-renewable energy input (such as ASHP connected to grid electricity), the energy obtained from the grid should be offset with the use of on-site renewables as far as practicable and feasible.

5.2.14 **Table 14** sets out types of energy technology and the relevant considerations:

Energy type	Technology	Description	Technology considerations
Electricity	Solar Photovoltaic	Use of solar cells to convert energy from the sun into electricity. Need energy storage for surplus energy unused	<ul style="list-style-type: none"> <li>• Preferably south-facing, (however PVs can operate at any orientation) and optimal angle 30 degrees</li> <li>• Availability of space to mount the equipment</li> <li>• Degree of shading from trees or other buildings</li> <li>• Visual impact</li> <li>• Amenity space impact</li> <li>• Heritage asset issue</li> <li>• Include the potential for storage on-site</li> </ul>
Electricity	Wind	Use of wind to generate electricity	<ul style="list-style-type: none"> <li>• Wind speed</li> <li>• Noise/vibration implications</li> <li>• Space considerations</li> <li>• Distance from noise-sensitive receptors</li> </ul>
Electricity	Small Scale Hydro	Uses kinetic energy in flowing water to turn a turbine and generate electricity	<ul style="list-style-type: none"> <li>• Sufficient water flow and velocity</li> <li>• Sited close to point of use or to suitable grid connection</li> <li>• Visual and noise impact</li> <li>• Effects on wildlife</li> <li>• Air and water quality</li> <li>• Various consents and licences may apply</li> </ul>

Energy type	Technology	Description	Technology considerations
Heat	Solar water heating system	Uses heat from the sun to warm domestic hot water that is stored in a tank. A conventional boiler or immersion heater is then used to provide hot water when solar energy is unavailable	<ul style="list-style-type: none"> <li>• Near south-facing roof based collector</li> <li>• Degree of shading from trees or other buildings</li> <li>• Level of demand for hot water</li> <li>• Storage capacity to maximise the capture of solar energy</li> <li>• Visual impact</li> <li>• Heritage asset impact</li> </ul>
Heat	Ground source heat pumps	The heat from the ground is absorbed by the liquid that is pumped through the buried pipes. Requires pipes to be buried horizontally or vertically in the ground by at least 2m	<ul style="list-style-type: none"> <li>• Soil suitability</li> <li>• Land availability for number of bore holes required (or land availability for horizontal pipework)</li> <li>• Space between boreholes</li> <li>• Distance from boreholes to heat plant</li> <li>• Heat pumps can operate in heating and cooling mode</li> </ul>
Heat	Air source heat pumps	Absorb heat from the outside air and can extract heat from the air. Require a heat exchanger to be located on the outside of a building	<ul style="list-style-type: none"> <li>• Close to point of use</li> <li>• Visual impact</li> <li>• Noise impact</li> <li>• Ecological and landscape impacts</li> <li>• Heritage asset impact</li> <li>• Heat pumps can operate in heating and cooling mode</li> </ul>



Energy type	Technology	Description	Technology considerations
Heat	Water source heat pumps	Absorb heat from, usually flowing water and can extract heat from the water	<ul style="list-style-type: none"> <li>• Sufficient water flow</li> <li>• Minimise impact on wildlife</li> <li>• Heat pumps can operate in heating and cooling mode.</li> </ul>
Heat	Biomass boilers and stoves <sup>29</sup>	Uses organic materials and biodegradable material, either directly from plants or indirectly from industrial, commercial, domestic or agricultural products	<ul style="list-style-type: none"> <li>• Availability of locally sourced biomass</li> <li>• Availability of internal or external storage space to store biomass products</li> <li>• Compliance of biomass fuel with current legislation to ensure air quality and amenity is not adversely impacted</li> <li>• Ecology impacts</li> <li>• Limitation to genuine waste products</li> </ul>
Heat	Biofuel systems	Uses waste products such as used cooking oil and waste fats from industry (such as animal processing)	<ul style="list-style-type: none"> <li>• Availability of locally sourced biofuel</li> <li>• Limited to genuine waste products. Primary biofuels derived from crops would not be acceptable</li> <li>• Compliance with legislation for air quality and other considerations of biofuels</li> </ul>

**Table 14: Energy technology requirements for 'Be Green'**

## Be Seen: Monitor and Report Performance

- 5.2.15 To monitor operational energy performance of buildings, at least five years' post-construction reporting is required via the GLA's monitoring portal. The 'Be Seen' energy performance guidance LPG sets out identifying a 'responsible party' for each stage and the performance indicators. Reporting is required at planning stage (RIBA 2/3), as-built stage (RIBA 6) and in-use stage using the Reporting template.

### Reporting

- 5.2.16 The mix of options selected through the energy hierarchy should be supported by evidence of the options appraised and associated detail on the chosen option. Major developments should submit this information in the Energy Strategy (see **Section 5.8**). The approach should subsequently be summarised in the Sustainability Statement.
- 5.2.17 Minor developments are required to submit adequate information in the Design & Access Statement that shows the proposals have maximised efforts towards reducing carbon emissions.
- 5.2.18 Once the on-site measures through the energy hierarchy have been maximised and the residual energy mitigation proven unviable, any shortfall is to be paid as a cash-in-lieu contribution into the council's Carbon Offset Fund. A carbon offset price is recommended at:

$$\text{Calculation: } S = (T - R) \times Y \times Z^{30}$$

S= Sum payable (CO2e), T = Energy targets, R = Reduction of CO2 in tonnes CO2/ annum, Y = 30 years, Z = Cost of carbon per tonne at time of submission being £95/ tonne CO2 (2022)

## 5.3 Key Policy Consideration: BREEAM and Other Accreditations

- 5.3.1 The Building Research Establishment Environmental Assessment Method (BREEAM) is a mandatory sustainability accreditation for schemes proposing non-residential uses. An accredited assessor undertakes this and credits are awarded across a range of topics and a final accreditation is awarded from good to excellent. Local Plan Policy BSUI1 requires non-residential development of 1,000sqm or more to achieve an 'excellent' rating.
- 5.3.2 To demonstrate the appropriate BREEAM level can be achieved, the following should be submitted with an application undertaken by an accredited assessor:

**Step 1: Preparation:** Submit BREEAM Preliminary Assessment Report at planning application stage

*Confirming project registration, scope of work, initial design SBEM calculation, technical details of proposed system(s), saving calculation summarised in an Energy Strategy*



**Step 2: Design:** Submit an Interim BREEAM Certification

*Confirming production information, tender documentation and actions prior to construction*



**Step 3: Construction:** Submit Post-Construction Assessment

*Informed by any modification and construction to practical completion*



**Step 4: Post-Construction final review:** Submit a BREEAM Certification, HQM and/or Passivhaus certificate

*Confirmation that the completed development has met the required ratings must finally be provided prior to occupation of the building*

**Table 15: BREEAM certification methodology**

- 5.3.3 Where feasible, developments deemed are actively encouraged to pursue accreditation with:

### Accreditation

- A** BREEAM New construction which relates to individual buildings
- B** BREEAM Communities for development on a wider scale
- C** BREEAM Refurbishment and Fit out for residential and non-residential existing building developments including conversions
- D** BREEAM Net zero carbon
- E** BREAAM Whole Life Performance
- F** Passivhaus (new built)
- G** Passivhaus EnerPhit (building retrofit)
- H** Home Quality Mark

**Table 16: List of relevant accreditations**

## 5.4 Key Policy Consideration: Building Regulations Part L

- 5.4.1 London Plan Policy SI 2 requires major developments to calculate and minimise all carbon emissions from any part of the development. This includes:
- a) **Regulated emissions:** those captured by the Building Regulations associated with energy consumed in the operation of the space (e.g. heating, cooling, hot water, internal lighting); and
  - b) **Unregulated emissions:** not captured by the Building Regulations and are emissions from other parts of the development (e.g. process waste, electrical appliances, cooking appliances and other small power such as lifts, IT equipment, refrigerators, external lighting).

### Regulated Emissions

- 5.4.2 Developments are now subject to the amended Building Regulations Part L that came into force on June 2022. It is the government's step towards The Future Buildings Standard to achieve zero carbon ready homes by 2025.
- 5.4.3 The Building Regulations help ensure that new buildings, conversions, renovations and extensions (domestic or commercial) are going to be safe, healthy and high performing. Developments are expected to adhere to the Building Regulations as set out within the Approved Documents. However, this section only expands on Part L, Part F and Part O, which relate to the London Plan policies on energy.
- 5.4.4 Building Regulations Part L covers the 'conservation of fuel and power' and establishes how energy-efficient new and existing homes should be. It requires a mandatory 35% cut in carbon dioxide emissions. To do so, a standard specification has been created identifying fabric and building services used in the notional building. The Future Homes Standard aims to progress to an overall 75% uplift by 2025.
- 5.4.5 London Plan Policy SI 2 uses the calculation methodology in Building Regulations Part L. Policy SI 2 requires developments to achieve zero carbon with a minimum 35% reduction with a push to exceed 50% reduction based on the calculations in Part L.

5.4.6 Part L is separated into various volumes:

- Part L1A – New Dwellings
- Part L1B – Existing Dwellings
- Part L2A – New buildings other than dwellings
- Part L2B – Existing buildings other than dwellings

Building Regulations Part L	Requirement	Targets
Part L1 (a)	Limits heat gains and losses for new homes through building fabric	<ul style="list-style-type: none"><li>• U-values (W/(sqm·K))</li><li>• Continuity of insulation</li><li>• Thermal Bridging</li><li>• Airtightness</li></ul>
Part L1 (b) and Part L (2)	Fixed building services energy efficiency and controls and on-site generation of electricity	<ul style="list-style-type: none"><li>• Fixed building services for heating and hot water systems (size and control)</li><li>• Any on-site electricity generation services for heating and hot water systems (size and control)</li><li>• Follow system specific guidance</li><li>• Underfloor heating systems</li><li>• Comfort cooling</li><li>• Lighting</li></ul>

**Table 17: Requirements of Part L of the Building Regulations**

- 5.4.7 It should be noted that the targets represent minimum standards for the individual elements. A dwelling would need to significantly exceed most of them in order to achieve the expected as-built performance.
- 5.4.8 Part L includes limiting values but compliance is based on a notional specification. In order to meet the required standards, developments will need to exceed the notional standards. See the LETI Climate Emergency Design Guide and the UKGBC's The New Homes Policy Playbook 2021 for further guidance.

5.4.9 Major development proposals should set out, as far as practicable, in their Energy Strategy and Sustainability Statement how the development will perform against the energy efficiency requirements. Information on the following will be particularly relevant:

- Nature of proposed heating system;
- U-values for parts of the building envelope (i.e. walls, floor, roof, doors, windows); and
- Comparison of energy calculations using the GLA's Carbon Reporting Spreadsheet.

### **Unregulated Emissions**

5.4.10 Unregulated emissions are established by using the BRE Domestic Energy Model (BREDEM),<sup>23</sup> Passivhaus Planning Package (PHPP), HQM or similar methodology. The calculation of unregulated carbon emissions should be done as part of the compliance with the 'Be Green and Be Seen' part of the energy hierarchy. Unregulated emissions do not contribute to the BER/TER, but are still required to be calculated and reported through Energy Use Intensity (EUI) measure of the total energy consumed in a building annually.

5.4.11 The Energy Strategy must clearly identify the unregulated energy uses of the development. The reporting for total energy demand must separately list 'unregulated electricity', 'unregulated gas' and 'unregulated process waste' for both residential and non-residential uses proposed.

## **5.5 Key Policy Consideration: Heating Hierarchy**

5.5.1 London Plan Policy SI 3 requires the heating hierarchy to be considered while considering the design proposal for major developments against 'Be Clean' part of the energy hierarchy. The focus is stepping away from gas and onto zero on-site emission heat sources. The heating hierarchy requires alternative technologies to be considered before assessing the viability of CHP. The heating hierarchy should be followed as per the requirements of Policy SI 3.

## 5.6 Key Policy Consideration: Cooling Hierarchy

### Cooling

- 5.6.1 London Plan Policy SI 4 requires the cooling hierarchy to be considered during the design of major developments against 'Be Clean' part of the energy hierarchy. In addition to what is set out in the policy, development is expected to reduce overheating risk through following the steps in the cooling hierarchy. The Energy Strategy must clearly demonstrate how the cooling hierarchy has been followed.

### Overheating

- 5.6.2 Development (including refurbishment) is expected to reduce overheating risk through following the steps in Building Regulations Part O compliance and cooling hierarchy. Natural light is usually necessary to provide a pleasant environment and reduce energy demands. Building layouts should however, be designed taking into account other factors such as overheating. Measures to consider to prevent overheating include:
- a) A balance between solar gain/daylighting;
  - b) Provide adequate means to remove heat from indoors through cross ventilation, ventilation louvres in external walls or mechanical ventilation systems;
  - c) Incorporate shading measures, overhang balconies, louvres, external blinds, shutters and awnings;
  - d) Shading designed to take into account the angle of the sun and the optimum daylight and solar gain;
  - e) High performance glazing;
  - f) Mechanical cooling may only be used where removal of insufficient heat is from the indoor environment is challenging.
- 5.6.3 Early design stage Overheating Risk Analysis will be expected to be carried out to identify key factors contributing to overheating risk. Where developments are at risk of overheating, additional detailed assessment and mitigation measures will be expected to be incorporated and set out in an Overheating Mitigation Strategy.
- 5.6.4 This will include Building Regulations Part O (Overheating) compliance tools and Dynamic Thermal Modelling (DTM) to demonstrate that any risk to overheating has been mitigated. DTM should be carried out in accordance with Part O and/or CIBSE TM59 Modelling. Developments will also be encouraged to follow the GLA's Design Summer Years for London (TM49: 2014) which provide guidance on futureproofing impacts of overheating from climate change.



- 5.6.5 Part O requires a non-technical Home User Guide being given to owners, containing maintenance requirements so that the implementation of the Overheating Mitigation Strategy is effective.
- 5.6.6 The council will support alternative assessment tools and standards including HQM and passive principles covering overheating, cooling and summer comfort. The Energy Strategy must clearly demonstrate how the overheating risk has been mitigated.

## Ventilation

- 5.6.7 Building Regulations Part F (Ventilation) sets out system specific requirements and performance targets to maintain indoor air quality through adequate means of ventilation. There are two approved documents: Volume 1 (Dwellings) and Volume 2 (Buildings other than dwellings). Measures to consider to provide ventilation include:
- a) Extracting water vapour and indoor air pollutants from areas where they are produced in significant quantities (e.g. kitchens, utility rooms and bathrooms);
  - b) Supplying a minimum level of outdoor air for occupants' health;
  - c) Rapidly diluting indoor air pollutants, and dispersing water vapour when necessary in habitable rooms;
  - d) Minimising the entry of external air pollutants;
  - e) Producing low level of noise;
  - f) Easy access for maintenance;
  - g) Providing protection from cold draughts;
  - h) Location of exhaust outlets;
  - i) Providing protection from rain; and that
  - j) Ventilation should be controllable (manual or automatic).
- 5.6.8 There are various types of ventilation: Natural, Mechanical and Hybrid (mixed mode). Ventilation rates should be in accordance with Part F.
- 5.6.9 This should be addressed in the Ventilation Strategy and Extraction Statement (see **Chapter 8**) Targets for intermittent and continuous extract ventilations are set out in Part F.

## 5.7

# Key Policy Consideration: Whole Life-Cycle Carbon Emissions (WLC)

- 5.7.1 London Plan Policy SI 2 (F) requires planning applications referable to the GLA to prepare a Whole Lifecycle Carbon (WLC) Assessment in line with the WLC Assessment LPG. Applications for major developments are also encouraged to undertake the assessment, specifically where demolition is being considered.
- 5.7.2 WLC emissions relates to the sum total of all building-related emissions over a building's entire life. It uses the British Standard BS EN 15978:2011 (Sustainability of construction works - Assessment of environmental performance of buildings - Calculation method).
- 5.7.3 The WLC approach will:
- Ensure carbon emissions are accounted for and support net zero emissions targets;
  - Achieve material resource efficiency, local sourcing, short supply chain, cost savings and reduce waste;
  - Identify carbon savings from recycling and support circular economy;
  - Encourage a 'fabric first' approach;
  - Ensure best solutions to reduce operational and embodied emissions;
  - Identify long-term impacts of maintenance, repair and replacement; and
  - Encourage longevity through durable construction and flexible design.
- 5.7.4 It should be demonstrated using the GLA's WLC Assessment template and record the subsequent actions taken to reduce emissions at each life-cycle stage. This information should be submitted to the GLA at each planning stage. The assessment should quantify the 60 years' impact of the development proposal in different life cycle modules following the 16 key principles (listed in **Table 18**) followed by the actions taken to reduce emissions. The life-cycle modules<sup>24</sup> include:
- **Module (product sourcing and construction stage):**  
A1-A3 Product stage, A4 and A5 Construction process stage: transport to site and construction installation process;
  - **Module (use stage):**  
B1 Use, B2 Maintenance, B3 and B4 Repair and replacement, B5 Refurbishment, B6 Operational energy use, B7 Operational water use;
  - **Module (end-of-life stage):**  
C1 Deconstruction and demolition process; C2 Transport, C3 Waste processing for reuse recovery or recycling, C4 Disposal;

- **Module (benefits and loads beyond the system boundary):**  
D Benefits and loads beyond the system boundary.

No.	WLC Principle	Relevant life-cycle module
1	Reuse and retrofit of existing built structures	A1-A5, B1-B6, C1-C4, D
2	Use repurposed or recycled materials	A1-A5, B1-B5, C1-C4, D
3	Material selection	A1-A5, B1-B5, C1-C4, D
4	Minimise operational energy use	A1-A5, B1-B4, B6
5	Minimise the carbon emissions associated with operational water use	A1-A5, B1-B4, B6, C1-C4, D
6	Disassembly and reuse	A1-A5, B1-B5, C1-C4, D
7	Building shape and form	A1-A5, B1-B6
8	Regenerative design	A1, B1, D
9	Designing for durability and flexibility	A1-A5, B1-B5, C1-C4, D
10	Optimisation of the relationship between operational and embodied carbon	A1-A5, B1-B6
11	Building life expectancy	A1-A5, B1-B5, C1-C4, D
12	Local sourcing	A1-A5, B3-B5
13	Minimising waste	A1-A5, B1-B7, C1-C4, D
14	Efficient construction	A1-A5, B1-B7, C1-C4, D
15	Lightweight construction	A1-A5, B1-B7, C1-C4, D
16	Circular economy	A1-A5, B1-B7, C1-C4, D

**Table 18: Whole life cycle principles and life cycle modules**

5.7.5 The adapted approach will identify the overall best combined opportunities for reducing the lifetime consequences of the development relating to carbon emissions.<sup>25</sup> The following process should be undertaken by an accredited assessor:

**Step 1: Initial design stage:** To establish a baseline carbon estimate:

- Adopt third-party quality assurance
- Set WLC targets (see WLC Assessment LPG: Appendix 2 for benchmarks)



Sustainable Environment & Development SPD



- Demonstrate WLC principles and life-cycle modules built into project brief and align with the proposal's Energy Strategy and Circular Economy Statement



**Step 2: Pre-application:** Submit the GLA template and all pre-app documentation to provide details on:

- Existing building structure condition and other options explored before demolition
- Carbon emissions associated with pre-construction demolition (standard assumption of 50kgCO<sub>2</sub>e/sqm to the GIA of the existing areas)
- Estimate percentage incorporating existing structure
- Demonstrate WLC principles
- Align with Energy Strategy and Circular Economy Statement



**Step 3: Planning application:** Submit the GLA template to confirm details and form baseline carbon estimate:

- Project details and software tool used, Environmental Product Declarations (EPDs) used
- Confirmation that assessment accounts for minimum 95% of capital cost allocated
- Estimated total WLC emissions (kgCO<sub>2</sub>e and kgCO<sub>2</sub>e/sqm GIA) for each life-cycle module
- Report total WLC emissions against the WLC benchmarks
- Other options explored before demolition
- Carbon emissions associated with pre-construction demolition (standard assumption of 50kgCO<sub>2</sub>e/sqm to the GIA of the existing areas)
- Estimate percentage incorporating existing structure
- Summary of key actions to achieve the WLC emission reductions
- Opportunities to reduce the development's WLC emissions further Completion of the 'material quantities and end-of-life scenarios' table and align with the 'Bill of Materials' table produced as part of the Circular Economy Statement
- Completion of the 'GWP of all life-cycle modules' table (Module C3 and D informed by Circular Economy Statement, Module B6 informed by the 'Be Seen' LPG)





**Step 4: Post Construction:** To provide the actual 'as built' carbon footprint at practical completion, submit the GLA template as secured via planning condition prior to occupation of the development:

- Update of the information provided at planning submission stage
- Update the WLC calculation results for all modules based on the actual materials, products and systems
- Comparison of the post-construction results with the WLC emissions baseline reported at planning submission stage and an explanation for the difference
- Latest design changes and available cost plan
- Comparison of the post-construction results with the WLC emissions benchmarks and an explanation for the difference
- Summary of lessons learnt
- Evidence: site energy use record, contractor confirmation of as-built material, record of material delivery, waste transportation, list of product specific EPDs installed.



**Step 5: GLA Assessing:** Scrutinise submission against the WLC Assessment LPG for completeness, technical quality, reduction in WLC emissions, and level of ambition



**Step 6: Future improvement:** Applicants are encouraged to submit their WLC assessments to the Built Environment Carbon Database

### Table 19: Whole life cycle methodology

5.7.6 Whole life carbon savings for a project can only be quantified and claimed when whole life carbon assessments have been carried out at a minimum of two different points in time. In summary, it is calculated as:

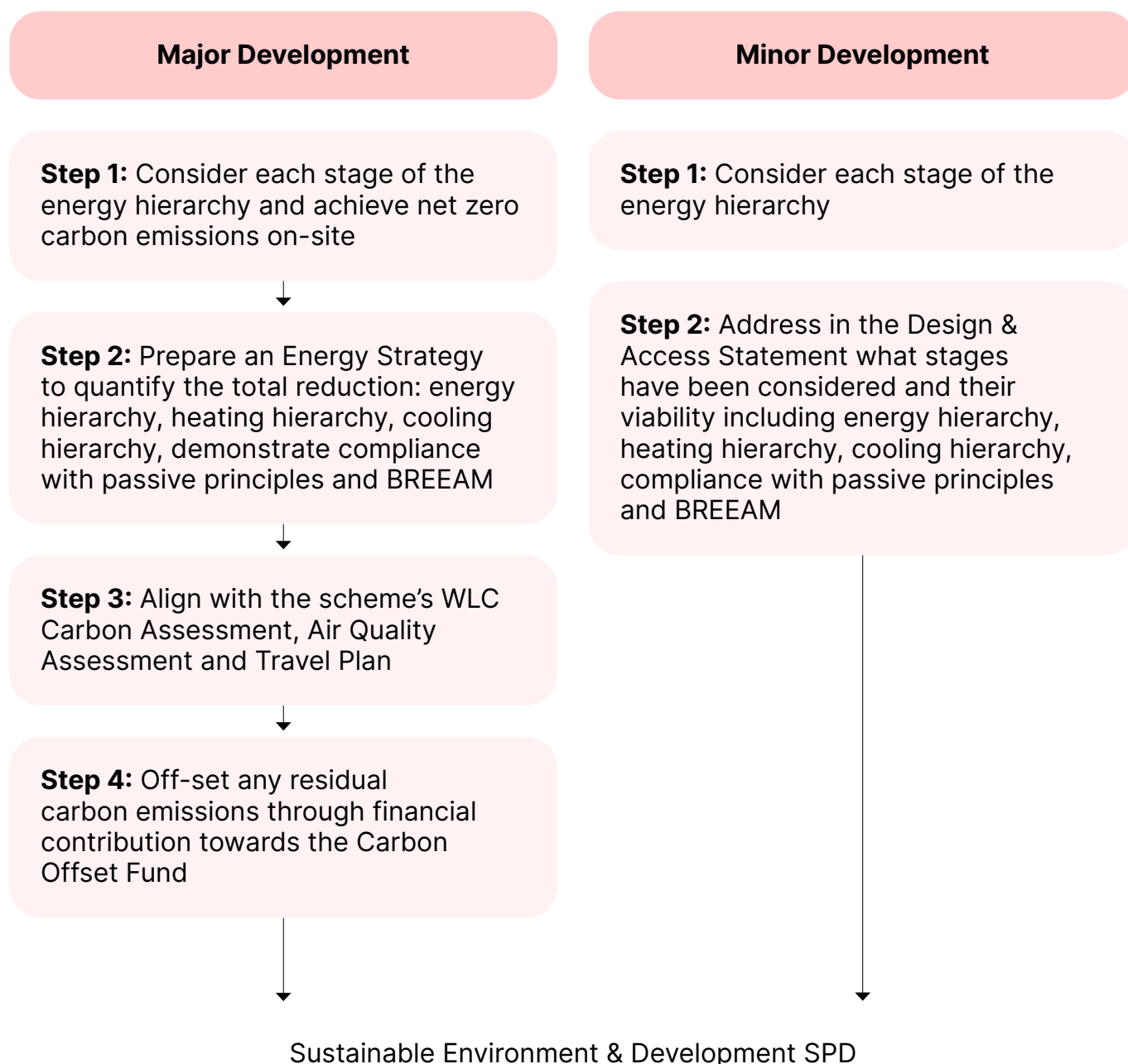
### Calculation: WLC Emissions = E + R + U + M

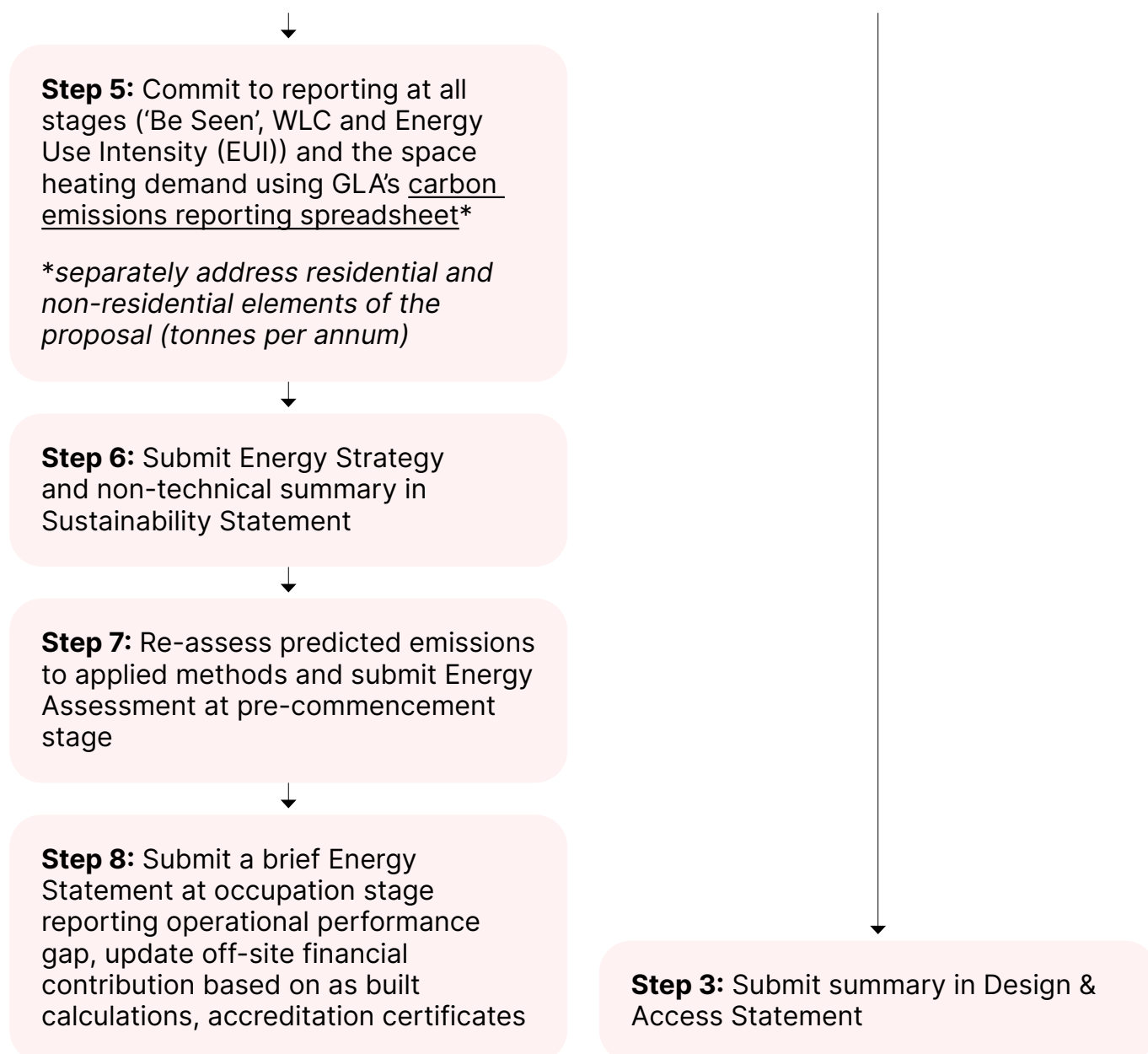
E = Embodied emissions, R = Regulated emissions, U = Unregulated emissions, M = Maintenance and replacement emissions

## 5.8 Planning to Mitigate Energy Infrastructure

5.8.1 When submitting proposals for a major development, supporting evidence alongside planning applications must be submitted on how requirements on energy efficiency have been met. The supporting documents are submitted at various stages of development:

- **Stage 1:** Preliminary Energy Strategy and Energy Strategy must be submitted with major development planning applications. Minor developments to address this in Design & Access Statement
- **Stage 2:** Energy Assessment must be submitted at completion stage
- **Stage 3:** Energy Statement submitted post occupation.





**Table 20: Energy Strategy methodology**

### Energy Strategy

5.8.2 An Energy Strategy is required to include the following information and be carried out by an accredited assessor as a minimum:

- a) Proposal details: number of each different type of residential unit, GIA (sqm), non-residential use floor area (sqm);
- b) Baseline regulated energy consumption: calculating using Building Regulations Part L calculations (SAP) for residential and non-residential developments;
- c) Baseline un-regulated energy consumption: calculating using the BREDEM-12 tool for residential developments. For non-residential developments estimated using CIBSE benchmarks;

- d) Provide the benchmark/relevant targets used;
- e) Energy efficiency measures: details of incorporated measures for each stage of the energy hierarchy;
- f) Specific details: building material U values, thermal mass estimation, and thermal bridging calculations ratings of electrical appliances
- g) Energy supply: Address all technologies explored, reasoning on suitability/unsuitability and chosen options. As a minimum specify: proposed system size, location, estimated energy generation, estimated CO2 savings, site-specific design requirements, incorporation of smart meters, maintenance requirements and estimated lifecycle;
- h) Example formats for simple tables containing data are given in GLA's Energy Assessment Guidance 2022;
- i) Estimated offset payment to the Carbon Offset Fund. Provision should be made to update this based on as built calculations;
- j) A non-technical summary: outlining the contribution of each set of measures adopted based on energy hierarchy and meeting relevant targets. Where it has not been possible to reach the target, a clear explanation should be provided;
- k) Consistent approach: such as energy strategy, overheating report and ventilation statement to share the same inputs.<sup>26</sup> These strategies should also take into account acoustic report and air quality assessments;
- l) A plan for monitoring and annual reporting of energy demand and carbon emissions post-construction for at least five years; and
- m) Accreditation: demonstrate that relevant accreditation can be achieved on the proposed scheme and commit to submitting proof at completion.
- n) Other considerations should include provision of drying space or equipment and home office space and services.

5.8.3 For development applications that include a DHN connection or future proofing measures, the following information is expected in addition to that already required above:

- a) A plan showing the pipe route and connection point to wider network;
- b) High level technical specification;
- c) Date of implementation and connection;
- d) Details of financial contributions;
- e) Feasibility and viability assessment;
- f) Utility operator to undertake installing, operating and maintaining; and
- g) Energy statement demonstrating carbon and energy savings.

## **Supporting Documents**

5.8.4 Proposals for major developments must provide the following supporting documents with their evidence base:



- A **Sustainability Statement** to:
  - Include GIA (sqm), number of each different type of residential unit, and non-residential floorspace;
  - Summarise the energy hierarchy approach;
  - Set out key measures to carbon reduction;
  - Identify any shortfall on-site carbon reductions; and
  - Identify any contributions to a Carbon Offset Fund;
- An **Energy Strategy** and **Energy Assessment** to include:
  - A detailed appraisal of energy hierarchy, heating hierarchy and cooling hierarchy considerations and key measures adopted for carbon reduction (both regulated and unregulated emissions);
  - A BREEAM preliminary assessment;
  - A BREEAM Interim certification;
  - Any identified shortfall on-site carbon reductions;
  - Building Regulations Part L calculations;
  - Fabric U-value calculations;
  - A Carbon Emissions Reporting Spreadsheet;
  - A Utilities Assessment;
  - A 'Be Seen' planning stage submission;
  - Carbon Offset Fund contributions; and
  - Integration of the energy approach with design, air quality and transport;
- An **Energy Statement** at pre-occupation stage to include:
  - A re-evaluation of performance;
  - A heat scan of thermal bridges;
  - A BREAAAM Post construction Assessment;
  - A BREEAM certification;
  - A HQM and or Passivhaus certification;
- A **Ventilation Strategy** and an **Extraction Statement**;
- Overheating Risk:
  - Overheating Risk Analysis;
  - Overheating Mitigation Strategy;
  - DTM (if relevant);
  - Home User Guide<sup>27</sup> (for occupiers); and
  - Alternative assessments (Passivhaus and/or HQM)
- A **Decarbonisation Plan** (if connecting to existing heat network);
- A **WLC Assessment** (if relevant) to include:
  - WLC Assessment template at each planning stage; and
  - Post-construction performance.

5.8.5 Proposals for minor development must provide a Design & Access Statement where sustainability information is proportionate to the size of the development. This will include adequate information to show how the energy and carbon requirements have been met.

## 5.9 Development Management

5.9.1 For major developments, requirement at each planning stage is listed below:

- **Pre-applications:** Preliminary Sustainability Statement, Preliminary Energy Strategy, BREEAM Preliminary Assessment, Whole Life-Cycle Carbon Assessment, template (pre-app stage), Carbon Emissions Reporting Spreadsheet (pre-app stage), Preliminary Utilities Assessment, Overheating Risk Analysis, Preliminary Ventilation strategy, Preliminary Decarbonisation Plan.
- **Outline applications:** All assessments, including an Implementation Plan explaining how the key policy considerations will be secured at the detailed design and application stage, energy masterplan for the area, assess the potential environmental effects. Planning conditions securing revision assessments as part of a Reserved Matters application in regards to a change in layout, use class, AQA, Transport Strategy or Energy Strategy.
- **Full applications:** Sustainability Statement, Energy Strategy, BREEAM Overheating, Be Seen planning stage submission, Whole Life-Cycle Carbon Assessment template (detailed planning stage), Carbon Emissions Reporting Spreadsheet, Utilities Assessment, Overheating Mitigation Strategy, Ventilation strategy and Decarbonisation Plan.
- **Phased development:** Each phase should demonstrate compliance with the key policy considerations through relevant assessments. All assessments to include calculations for the development as a whole and additional table showing calculations for all phases.
- **Post-construction:** Energy Assessment, BREEAM Post Construction Assessment and certification, WLC Post construction performance and BREL Report.
- **Post occupation:** Energy Statement, Be Seen reporting and evidence of Overheating Home User Guide.

5.9.2 The planning requirements for each type of proposed development are listed in tables below. These set out measures for:

## Major Development

## Minor Development

## Change of Use

## Permitted Development

### Major Development

- A** Should be net zero carbon;
- B** Follow the energy hierarchy;
- C** Follow the heating hierarchy;
- D** Follow the cooling hierarchy;
- E** Consider overheating and ventilation;
- F** Calculate regulated and unregulated emissions;
- G** Incorporate passive principles and fabric first approach;
- H** Off-set any residual carbon emissions through financial contribution towards the Carbon Offset Fund;
- I** Applications with refurbishment should aim to meet London Plan Policy SI 2;
- J** Applications referable to the Mayor must undertake a WLC Assessment. Major applications are encouraged to undertake WLC Assessment.

### Minor Development

- K** Maximise the opportunity to meet net zero carbon target;
- L** Consider energy hierarchy, heating hierarchy, cooling hierarchy, compliance with Passive principles and BREEAM.

## Change of Use

- M** Where change of use affects the envelope of a building or its building services (e.g. heating, ventilation, air conditioning) it will need to meet minimum energy efficiency requirements under Building Regulations Part L;
- N** Encourage BREEAM Domestic Refurbishment 'Excellent' (where feasible).

## Permitted Development

- O** Where permitted development affects the envelope of a building or its building services (e.g. heating, ventilation, air conditioning) they are encouraged to meet energy efficiency requirements.

## 5.10 Planning Conditions and Obligations and Monitoring Requirements

### Planning Obligations

- P** The council will require work to be carried out in accordance with the proposals and measures set out in the submitted Energy Strategy and Sustainability Statement;
- Q** BREEAM Post-Construction Assessment and BREEAM Certification will be required to submitted post construction;
- R** WLC post-construction performance secured using GLA draft wording;
- S** Where connection to an existing or future heating network is deemed feasible, a commitment to connection may be secured;
- T** Any shortfall in meeting the energy hierarchy to offset any residual carbon emissions through financial contribution towards the council's Carbon Offset Fund;
- U** Post-occupation Energy Statement;
- V** 'Be Seen' reporting: as-built and in-use stage data secured using GLA draft wording;
- W** Evidence of Overheating Home User Guide.

### Monitoring

- X** Monitor and reporting to the 'Be Seen' requirement at least five years via the GLA online portal;
- Y** Building Regulations Part L: an on-site audit will be required to confirm that the designed details have been constructed, and photographs must be taken as evidence to form the BREL report;
- Z** Post-construction Dynamic Thermal Modelling (DTM) to identify gaps in insulation/heat escape/thermal bridging.

# **6. Sustainable Movement**

## 6.1 Sustainable Movement in Brent

Motor vehicles are responsible for 48% of NOx emissions, 30% of PM2.5 emissions and 25% of PM10 emissions in Brent. Transport emissions have not changed significantly over time, with a decrease of only around 7,000 tonnes of CO2 achieved since 2013. The council has commissioned a route map to get to net zero carbon emissions from road transport by 2030. This will require enormous changes in the way that people travel in Brent, in vehicle technology, in transport fuel sources and uptake in the technology that will make travel more efficient or not needed at all.

Positive steps are being made in changing travel behaviour. The overall mode share for walking, cycling and public transport in Brent increased to 69% in 2020 - one of the highest figures for an outer London borough. Car ownership is reducing, with the number of registered vehicles in the borough down from over 101,000 in 2016 to 96,000 in 2020.

There are future opportunities. Expansion of the London Ultra Low Emission Zone (ULEZ) and upgrading of the TfL bus fleet will help significantly improve air quality in parts of the borough. Council initiatives include further expansion of the network of 450 electric vehicle charging points; a 'Healthy Routes' programme delivering safe, continuous cycling routes (and supporting infrastructure), and attractive, safe and accessible walking routes to key destinations in the borough; and active travel initiatives, including the implementation of School Streets and Healthy Neighbourhoods.

The council is working jointly with TfL and the West London Alliance to take forward the West London Orbital rail link. The link would use the existing Dudding Hill freight line to create a London Overground passenger line connecting Hounslow in the west to Hendon and West Hampstead in the east. This will significantly improve orbital public transport links in the borough. It is also working with Barnet Council to create a high quality pedestrian connection from Brent Cross West Thameslink station to Staples Corner.

## 6.2 Policy Overview

### **National Policy & Guidance**

National Planning Policy Framework, Para 104 -113

Planning Practice Guidance Travel Plans, Transport Assessments and Statements

National Design Guide, MHCLG 2021

National Model Design Code, MHCLG 2021

Gear Change: A bold vision for cycling and walking, DfT 2020

Future of Mobility: Urban Strategy, DfT 2019

The Inclusive Transport Strategy, DfT 2018

The Road to Zero, DfT 2018

### **London Plan Policy & Guidance**

London Plan Policy T1 Strategic Approach to Transport

London Plan Policy T2 Healthy Streets

London Plan Policy T4 Assessing and mitigating transport impacts

London Plan Policy T5 Cycling

London Plan Policy T6 Car parking

London Plan Policy T6.1 Residential parking

London Plan Policy T6.2 Office parking

London Plan Policy T6.3 Retail parking

London Plan Policy T6.4 Hotel and leisure use parking

London Plan Policy T6.5 Non-residential disabled persons parking

Sustainable Transport, Walking and Cycling LPG (2022), TfL

Pedestrian Comfort Guidance for London (2019), TfL

Mayor's Transport Strategy (2018), TfL

Cycling Action Plan (2018), TfL

West London Cycle Parking Design Guide (2017), WestTrans

London Cycle Design Standards (2014), TfL

### **Local Plan Policy & Guidance**

Brent Local Plan Policy BT1 Sustainable Travel Choice

Brent Local Plan Policy BT2 Parking and Car Free Development

Brent Local Plan Policy BT3 Freight and Servicing

Brent Long Term Transport Strategy (2022)

Brent Climate Change and Transport Study: Route map to net zero carbon by 2030 (2020)

Brent COVID-19 Transport Recovery Plan (draft)



- 6.2.1 The government has a target for all new cars and vans to be effectively zero emission by 2040. If this is achieved, the forecast reduction in CO2 emissions is 80% by 2050, even against a backdrop of traffic growth. To achieve this target the government's Road to Zero (2018) and Future of Mobility: Urban Strategy (2019) promotes innovation in the development of transport and infrastructure to support electric vehicles.
- 6.2.2 Alongside technical innovation, it is recognised there is a need to promote a change in behaviour. Gear Change: A bold vision for cycling and walking for England (2020) sets the ambition that cycling and walking will be the natural first choice for many journeys with half of all journeys in towns and cities being cycled or walked by 2030. All new developments are to be designed to make sustainable travel, including cycling and walking, the first choice for journeys, and unnecessary motorised freight and servicing traffic reduced. The government has established a new executive agency Active Travel England to deliver on its ambitions.
- 6.2.3 The GLA and TfL set out approaches to reaching a net zero carbon transport system in London by 2050 in the Mayor's Transport Strategy (2018) and London Plan (2021). These documents align with national goals, while setting out specific policies and strategies for London. The Mayor's primary objectives include:
- a) A target of 80% of all personal trips to be made on foot, cycle or public transport by 2041;
  - b) 70% of Londoners to be within 400 metres of a London-wide network of high-quality cycle routes by 2041;
  - c) A zero-emission zone in central London by 2025, inner London by 2040 and outer London by 2050;
  - d) Zero emission buses, taxis and private hire vehicles;
  - e) Reduction of total London traffic by 10-15%; and
  - f) Investment in electric vehicle charging points.
- 6.2.4 The Brent Long Term Transport Strategy (2022) sets out proposals for improving the transport system in Brent over the next 20 years, which aligns with Government and Mayoral objectives. It takes forward recommendations to achieve net zero carbon emissions from transport by 2030, ahead of the Mayor's target. Other key targets include increasing walking, cycling and public transport mode share to 80% and achieving a 25% reduction in car ownership and the volume of traffic on our roads by 2041.

## 6.3 Key Policy Consideration: Increase Active Travel and Public Transport

- 6.3.1 London Plan Policy T1 requires all development proposals to facilitate the delivery of the strategic target of 80% of all trips in London to be made by foot, cycle or public transport by 2041. In line with Local Plan Policy BT1 active (walking and cycling) and sustainable (public transport) travel should be prioritised over private vehicle use.
- 6.3.2 To achieve this, proposals need to demonstrate that a 'Healthy Streets Approach' has been taken to deliver positive changes to the character and use of streets. This should be in accordance with the 10 indicators shown in **Figure 1**.
- 6.3.3 Proposals should also contribute to 'Vision Zero' by designing streets in a way which reduces dominance of motor vehicles and ensure slower vehicle speeds and safer driver behaviour. For example, through traffic calming.
- 6.3.4 Development should be permeable to pedestrians and cyclists, well-connected to the immediate surrounding area and also key destinations including town centres, schools, parks and transport hubs. A 20-minute neighbourhood approach should be taken whereby people have the ability to meet most of their daily needs in a 20-minute walk. Consistent with this approach, Local Plan Policy BH4 supports residential intensification in town centres, intensification corridors and areas with PTAL 3-6.



**Figure 1: Healthy Streets indicators**

- 6.3.5 Developments should also be well-connected to the cycle network. A map of the current cycle network and planned future links is periodically updated reflecting the most up to date Brent Cycling Strategy. Cycle parking should be provided, as a minimum, in accordance with standards in London Plan Policy T5. It should be secure, sheltered, well-located and fully accessible for parking for all cycle types. Detailed guidance is contained within the TfL London Cycling Design Standards and WestTrans West London Cycle Parking Design Guide.
- 6.3.6 Under London Plan Policy T4, development proposals should be well connected to public transport. Where relevant, developments may be required to contribute to improvements to public transport services and infrastructure. This can include enhancements to the frequency and reliability of bus and rail services and capacity/access improvements to stations and key interchange facilities.
- 6.3.7 Strategic developments are encouraged to include Mobility Hubs. This will bring together public transport with shared mobility options (such as bikes, e-scooters, e-cargo bikes and car clubs) in spaces designed preferentially for this purpose rather than the private car.
- 6.3.8 Under London Plan Policy T3 development should safeguard existing land, such as the Capital Ring walking route, and buildings used for public transport, active travel or related functions. It should also safeguard new sites/spaces and route alignments to provide future capacity, the West London Orbital for example.

## **6.4 Key Policy Considerations: Reduce Journeys by Private Vehicle**

- 6.4.1 London Plan Policies T1-T6 and Local Plan Policy BT1 require, in the first instance, that development should reduce the need to travel overall. Amongst many others, one way to support this, is for developers to engage with digital network operators early to ensure sufficient ducting space for full fibre connectivity in new development and other measures to also support the move to 5G and enable home working (see London Plan Policy SI 6 and Local Plan Policy BE1).
- 6.4.2 As set out in Local Plan Policy BT1, car parking standards in the London Plan are maximums and car free development should be the starting point for all development proposals in places that are (or are planned to be) well-connected by public transport. This is defined as those with PTAL 5-6. In Brent however, the council will also seek car-free development in PTAL 4 and possibly other locations where appropriate mitigations can be made. Developments elsewhere are to be designed to provide the minimum necessary parking.
- 6.4.3 Where parking is required, car clubs and car pools are strongly encouraged. For example, on large residential schemes free membership of a local car club could be provided.
- 6.4.4 In car free developments, access to on-street parking permits for future development occupiers other than for disabled blue badge holders will be limited. This will be alongside where there is a present Controlled Parking Zone (CPZ). Where a CPZ is not planned or in place, a financial contribution is likely to be sought to implement one through consultation.
- 6.4.5 Even in car free developments a level of disabled parking will be required. London Plan Policy T6.1 states that proposals delivering 10 or more residential units must provide at least one designated disabled persons parking bay per dwelling for 3% of dwellings. It must also be demonstrated in the Parking Design and Management Plan that if this provision proves insufficient in the future, an additional 7% of dwellings could be provided with one designated disabled person's parking space per dwelling. This may be on street in a CPZ as disabled blue badge holders are exempt from car free agreements.
- 6.4.6 Local Plan Policy BT3 requires the movement of goods and materials by road to be minimised. Freight or micro-consolidation should be used to reduce trips and sustainable alternatives, such as rail, canal or last mile delivery cargo bikes should be used where possible. Deliveries should be timed outside of peak hours to help reduce congestion.

## 6.5

# Key Policy Considerations: Increase Take Up of Zero Emission Vehicles

- 6.5.1 Where car parking is provided in new developments, provision should be made for infrastructure for electric or other ULEVs in line with London Plan Policy T6.1 Residential parking, Policy T6.2 Office parking, Policy T6.3 Retail parking, and Policy T6.4 Hotel and leisure uses parking.
- 6.5.2 All operational parking should make this provision, including offering rapid charging. In residential developments, at least 20% of spaces should have active charging facilities, with passive<sup>31</sup> provision for all remaining spaces.
- 6.5.3 Provision of large cycle parking spaces are encouraged to provide charging facilities for e-bikes. Charge points at public buildings, stations, in town centres, at libraries could also support e-cargo bike deliveries or e-bike use.

## 6.6 Planning to Mitigate Transport Impacts

- 6.6.1 Development proposals will have regard to policies in the NPPF, London Plan, Local Plan and the Sustainable Transport, and Walking and Cycling London Plan Guidance. The council's Long Term Transport Strategy, Borough Plan and other local strategies will be material considerations.
- 6.6.2 **Table 21** below summarises the key policy considerations to achieve sustainable movement:

### Step 1: Reduce the need to travel by car:

- Locate development in areas well connected to key destinations, where occupiers can meet most of their daily needs in a 20-minute walk
- Locate development on sites, which are or planned to be well connected by public transport and the cycle network. Where relevant contribute to improvements to public transport and the cycle network
- Enable home working by including ducting space to enable full fibre connectivity in new development and other infrastructure to support the move to 5G



### Step 2: Prioritise walking and cycling:

- Design developments to be permeable to pedestrians and cyclists and well connected to existing and planned routes
- Design streets in line with the Healthy Streets indicators
- Provide cycle parking in line with or exceeding London Plan standards and meeting TfL and WestTrans design standards



### Step 3: Reduce car use:

- Development to be car free in PTAL 4-6 areas, and include minimum car parking elsewhere
- All developments delivering 10 or more residential units must provide at least one designated disabled persons parking bay per dwelling for 3% of dwellings



**Step 4:** Provision for Electric and Ultra-low emission vehicles:

- Where car parking is provided, make provision for electric or other ULEVs in line with or exceeding London Plan standards
- Where car parking is provided, make provision for car clubs and pool cars with active charging facilities and other shared mobility options, in lieu of private parking



**Step 5:** Minimise movement of goods and materials by road:

- Consolidate deliveries and their time outside of peak hours
- Support and charging facilities for the use of cargo bikes or electric mobility options for 'last mile' delivery
- Where feasible move freight by water or rail

**Table 21: Sustainable movement methodology**

6.6.3 Depending on the scale and nature of the scheme, the following supporting studies may be required:

- Transport Assessment (TA) and Travel Plan or Transport Statement (TS) (see **Table 22**)
- Construction and Logistics Plan (CLP) (see **Table 23**)
- Delivery and Servicing Plan (DSP) (see **Table 24**)
- Parking Design and Management Plan (PDMP) (see **Table 25**)
- Healthy Streets Assessment (HSA) (see **Table 26**)

# Transport Assessment and Travel Plan or Transport Statement

Will the development generate significant amounts of movement?

*There is national guidance on indicative thresholds for TAs and TSs*

**Yes**

**No**

A Transport Assessment (TA), including Travel Plan (TP) is required

A Transport Statement (TS) is required where transport impacts are anticipated to be more limited. Where the transport impacts of a development are not significant, it may be that no TA or TS is required

**Purpose:** To ensure the impacts on the capacity of the transport network (including impacts on pedestrians and the cycle network), at the local, network-wide and strategic level, are fully assessed

**When:** At application stage. Pre-application discussions are encouraged to establish the potential level of impact and study needed)

**Format:** TAs should be produced in accordance with TfL's Healthy Streets TA template. TPs should be produced in accordance with TfL guidance

**Table 22: Requirements for a Transport Assessment (TA) and Travel Plan or Transport Statement (TS)**



# Construction and Logistics Plan

Is this a major development and/or will construction impacts need to be mitigated?  
(E.g. there is a busy pedestrian environment, the site is next to a major junction or where there is excavation for basements)

**Yes**

A Construction and Logistic Plan (CLP) is required

**No**

Consider impacts in TA or TS

**Purpose:** To set out the framework for understanding and managing construction vehicle activity into and out of a proposed development, encouraging modal shift and reducing overall vehicle numbers

**When:** An outline CLP accompanies the planning application and detailed CLP is conditioned for submission prior to construction

**Format:** CLPs should be produced in accordance with TfL's Construction Logistic Planning Guidance and associated template

**Table 23: Requirements for a Construction and Logistics Plan (CLP)**

# Delivery and Servicing Plan

Will the development generate frequent delivery or servicing activity?

*(E.g. for commercial, logistics and other industrial premises, mixed-use development and residential development of over 80 units)*

**Yes**

**No**

A Delivery and Servicing Plan (DSP) is required

Consider impacts in TA or TS

**Purpose:** To set out how the design and layout of the site will provide provision for delivery and servicing, and how these will be managed and minimised

**When:** At application stage

**Format:** DSPs should be produced in accordance with TfL's [Delivery and Servicing Plan Guidance](#)

**Table 24: Requirements for a Delivery and Servicing Plan (DSP)**

# Parking Design and Management Plan

Is this a major development with over 12 car parking spaces?

**Yes**

A Parking Design and Management Plan (PDMP) is required

**No**

Include details of car parking in Design and Access Statement

**Purpose:** To set how the car parking will be designed and managed, including for disabled parking

**When:** An outline PDMP accompanies the planning application and detailed PDMP is conditioned for submission prior to occupation

**Format:** With reference to TfL's guidance on parking management and parking design

**Table 25: Requirements for a Parking Design and Management Plan (PDMP)**

# Healthy Streets Assessment

Does the development involve significant physical alterations to strategic or local highway?

*(E.g. a S278 agreement is required, highway works exceed £200k)*

**Yes**

A Healthy Streets Assessment (HSA) is required

**No**

A Stage 1 Road Safety Audit is still required where any highways works are proposed

**Purpose:** To assess the layout of highway against the Healthy Street Indicators. The objective is to get a score as high as possible, and for this to be evenly distributed across the 10 indicators as possible. A scheme should aim to increase every indicator's score and eliminate any scores of zero. The scoring will help inform discussions and identify how a scheme could be further improved

**When:** This will be most beneficial early in the design process, with a draft assessment at pre-app stage

**Format:** This should use the TfL [Healthy Streets Check for Designers desktop tool](#)

**Table 26: Requirements for a Healthy Streets Assessment**

## 6.7 Development Management

6.7.1 At each planning application stage, the following will be required, depending on the scale of the development:

- **Pre-applications:** A Transport Scoping Note should be submitted to help officers identify the level of assessment needed, and where relevant agree parameters for the Transport Assessment. Where the proposal involves works to the highway (excluding a drop kerb) a Healthy Streets Assessment should be undertaken early in the design process, and help inform pre-application discussions.
- **Outline applications:** All assessments to include a TA or TS. Planning conditions may secure revision to assessments as part of a Reserved Matters application in regards to a change in layout or transport strategy.
- **Full applications:** As set out above, in some circumstances the following will be required: Transport Assessment and Travel Plan or Transport Statement, Construction and Logistics Plan, Delivery and Servicing Plan, Parking Design and Management Plan, Healthy Streets Assessment.
- **Phased development:** Each phase should demonstrate through relevant assessments compliance with the key policy considerations. All assessments to include calculations for the development as a whole and additional table showing calculations for all phases.

6.7.2 The planning requirements for each type of proposed development are listed in tables below.

**Major Development**

**Minor Development**

**Change of Use**

**Permitted Development**

### **Major Development**

- A** Prioritise active and sustainable travel over private motor vehicles;
- B** Increase permeability and connectivity by walking and cycling to key destinations;
- C** Remove drop kerbs where no longer required;
- D** Create safe, inclusive, legible and attractive environments for walking and cycling, reflecting a healthy streets and vision zero approach;
- E** Provide cycle parking and charging facilities in line with or exceeding London Plan standards and meeting TfL and WestTrans design standards;
- F** Support capacity, connectivity and other improvements to public transport and ensure the bus network can operate efficiently to, from and within developments;
- G** Ensure sufficient ducting space for full fibre connectivity infrastructure and other infrastructure to support the move to 5G;
- H** Be car-free in places that are (or are planned to be) well-connected by public transport (PTAL 4-6), with developments elsewhere designed to provide the minimum necessary parking in line with London Plan and Local Plan standards;
- I** Where car parking is provided, make provision for electric or other ultra-low emission vehicles in line with or exceeding London Plan standards;
- J** Where car parking is provided, make provision for car clubs and pool cars with active charging facilities and other shared mobility options, in lieu of private parking;
- K** Minimise movement of goods and material through freight and micro-consolidation.

## Major Development (continued)

- L** Facilitate sustainable movement by rail, waterways and for last mile delivery cargo bikes or electric mobility options;
- M** Reduce pressure on road network by seeking to time deliveries outside of peak hours;
- N** Safeguard land and buildings where they are required to provide necessary connectivity and capacity by public transport, walking and cycling;
- O** Safeguard existing sidings and sites adjacent them or the canal with potential for freight use.

## Minor Development

- P** As above where relevant and proportionate to the scale of development;
- Q** Where off-street parking is provided, preserve trees and provide adequate soft landscaping (in the case of front gardens 50% coverage), permeable surfaces, boundary treatment and other treatments to offset adverse visual impacts and increases in surface water run-off.

## Change of Use

- R** As above where relevant and proportionate to the scale of development.

## Permitted Development

- S** Demonstrate the proposal will not result in unacceptable transport and highways impacts;
- T** Provide safe and attractive routes into and within the development for walking and cycling;
- U** Be car-free in places that are (or are planned to be) well-connected by public transport (PTAL 4-6), with developments elsewhere designed to provide the minimum necessary parking in line with London Plan and Local Plan standards;
- V** Provide cycle parking, in line with or exceeding London Plan standards and meeting TfL and WestTrans design standard;
- W** Provide adequate space for servicing, storage and deliveries.

## 6.8 Planning Conditions and Obligations

- 6.8.1 Conditions will be informed by the measures outlined in the TA/TS, TP and DSP and HSA. In addition, a detailed CLP will be secured by condition. The Brent Planning Obligations SPD provides further information on our approach to obligations.

### Planning Obligations

#### **X Design phase:**

- On-site measures outlined in the TA/TS, TP, DSP and HSA;
- Off-site implementation of measures will be secured where necessary to make development acceptable in transport and Healthy Streets terms.

#### **Y Construction phase:**

- Detailed CLP prior to commencement;
- S278 agreements where developer-funded highway works required;
- Transport management measures around the construction site should ensure continued permeability for wheelchair access, pedestrians, cyclists, bus services, accessibility of bus stops;

#### **Z Operational phase:**

- Implementation of TP;
- Implementation of DSP;
- Mitigation measures outlined in the TA/TS, TP and HSA.



## 6.9 Monitoring Requirements

- 6.9.1 On major developments post-completion, the developer will appoint a Travel Plan Co-ordinator with responsibility for monitoring performance against the TP targets and objectives. Where relevant, incorporating DSP targets.
- 6.9.2 Monitoring will be for a five year period. A survey should be undertaken at years 1, 3 and 5 and a Monitoring Report submitted to the council for approval. This will demonstrate how the TP has been implemented including:
- a) Measures introduced and actions taken to promote the TP;
  - b) A statistical summary of the modal split of employees/residents/users disclosed by the monitoring surveys;
  - c) The progress of the TP in achieving targets and identifying any amendments to be agreed in writing by the council;
  - d) A plan for future actions to be implemented.

### Monitoring

**AA** Performance against the Travel Plan will be monitored, where relevant;

**AB** Performance against the Delivery and Servicing Plan will be monitored, where relevant.

# **7. Waste & Circular Economy**

## 7.1 Policy Overview

### National Policy & Guidance

[The Environmental Protection \(Duty of Care\) Regulations 1991](#)

[25 Year Environment Plan](#)

[Waste \(England and Wales\) Regulations 2011](#)

[Environment Act 2021](#)

[National Planning Policy Guidance - Waste \(2015\)](#)

[Defra Waste Management Plan for England 2021](#)

[HM Government Resources and waste strategy for England](#)

[Clean Neighbourhoods and Environment Act 2005](#)

[UKGBC The New Homes Policy Playbook 2021](#)

[UKGBC 'Circular economy guidance for construction clients: how to practically apply circular economy principles at the project brief stage'](#)

[Defra Guidance on applying waste hierarchy](#)

[BRE's Homes Quality Mark and SMART 'Waste'](#)

### London Plan Policy & Guidance

[London Plan Policy D3 Optimising site capacity through the design-led approach](#)

[London Plan Policy D13 Agent of Change](#)

[London Plan Policy SI 2 Minimising greenhouse gas emissions](#)

[London Plan Policy SI 7 Reducing waste and supporting the circular economy](#)

[London Plan Policy SI 8 Waste capacity and net waste self-sufficiency](#)

[London Plan Policy SI 9 Safeguard waste sites](#)

[Mayor of London LPG Circular Economy Statements](#)

[Mayor of London LPG Circular Economy Statements Template spreadsheet](#)

[Mayor of London LPG Whole Life Cycle Carbon Assessments](#)

### Local Plan Policy & Guidance

[Brent Local Plan Policy BSUI1 Creating a resilient and efficient Brent](#)

[Brent Climate and Ecological Emergency Strategy 2021](#)

[West London Waste Plan](#)

[Waste and recycling storage and collection guidance for residential properties](#)

[Brent Design Guide SPD1](#)

- 7.1.1 Waste management is reducing, re-using and recycling waste, and working towards designing out waste. The objective is effective waste management to reduce carbon emissions from the waste sector and contribute to the government's net zero target, and a green post-pandemic recovery.
- 7.1.2 The Environmental Protection Regulations 1991 (as amended), Waste (England and Wales) Regulations 2011 and the 25 Year Environment Plan set out the duty of care legislation for the safe management of waste on waste holders.
- 7.1.3 The Resources and Waste Strategy for England builds on the commitment for materials resources preservation by 2050 in line with the 25 Year Environment Plan. This is through minimising waste, promoting resource efficiency and moving towards a circular economy in England.
- 7.1.4 Defra's Waste Management Plan for England 2021 fulfils the requirement of the 2011 Regulations. It provides an overview of waste management to set the course for the commitment to double resource productivity by 2050. In response to this, the Environment Act aims to reform the UK's responsibility system in relation to resource and waste management to strengthen policies at every stage of the product lifecycle.
- 7.1.5 The Resources and Waste Strategy for England contains a framework of five strategic ambitions to reduce the impact of consumption and the resulting waste on the environment to:
- 1) Work towards eliminating food waste to landfill;
  - 2) Double resource productivity;
  - 3) Work towards ensuring all plastic packaging placed on the market is recyclable, reusable or compostable;
  - 4) Eliminate avoidable waste of all kinds; and
  - 5) Eliminate avoidable plastic waste.
- 7.1.6 The London Environment Strategy sets out the Mayor's approach for waste management.<sup>32</sup> London Plan Policies SI 7 Reducing waste and supporting the circular economy, SI 8 Waste capacity and net waste self-sufficiency and SI 9 Safeguarded waste sites set the strategic policy for waste. Other policies that tie in with waste management include London Plan Policy SI 2.
- 7.1.7 Households, businesses, civic amenity sites and construction demolition and excavation generate waste in Brent. The council has three roles, one as a waste planning authority, one as a disposal authority and also as a waste collection authority. Waste planning authorities are responsible for waste development plans. Brent is part of the West London Waste Authority (WLWA).<sup>33</sup> The WLWA is a statutory waste disposal authority and is responsible for disposing of waste collected.

- 7.1.8 The council is responsible for the collection of non-recyclable and recyclable waste from all domestic properties within its boundary. In line with the London Environment Strategy, the council has set out its local reduction and recycling targets in Brent's Reduction and Recycling Plan. In addition, the Brent Climate and Ecological Emergency Strategy 2021 sets out the council's aim to reduce the borough's consumption emissions by two thirds by 2030. It focuses on community led behaviour change, supporting waste infrastructure and enhancing low carbon circular economy.
- 7.1.9 The council has also published the Waste and recycling storage and collection guidance for residential properties; the most up-to-date guidance will be available on the council's website.<sup>34</sup> Brent Design Guide SPD1 also sets out principles on bin storage for developments.
- 7.1.10 The council supports the BRE's Home Quality Mark that assigns assessment credits based on a site's waste reduction performance. It includes credit category on 'space' (consultation with waste collection authority, composting facilities and management and internal waste storage for recyclable waste). Another category is 'construction impacts' (site waste management from product procurement to landfill). The BRE also encourages the use of waste management reporting tool called SMART 'Waste'. The tool enables users to capture, monitor and target a project's on-site waste outputs, impacts and costs.
- 7.1.11 Waste minimisation can be effectively addressed in the design and layout of new development, particularly as the population of Brent continues to grow. Implementing the waste hierarchy and promoting circular economy hierarchy and principles are the key policy considerations to reducing the amount of waste produced and ensuring that more materials are reused, repaired and recycled.

## 7.2 Key Policy Consideration: Waste Hierarchy

7.2.1 The Waste (England and Wales) Regulations 2011 set out a five step waste hierarchy dealing with waste, ranked according to environmental impact (see **Table 27**). The waste hierarchy is a framework for securing a sustainable approach to waste management. London Plan Policies SI 7, SI 8 and SI 9 require development proposals to implement the waste hierarchy.

**Stage 1: Prevention:** Use less material in design and manufacture, keeping products for longer (re-use); Use less hazardous material



**Stage 2: Preparing for re-use:** Checking, cleaning, repairing, refurbishing, whole items or spare parts



**Stage 3: Recycling:** Turning waste into a new substance or product and include composting if it meets quality protocols



**Stage 4: Other recovery:** Include anaerobic digestions, incineration with energy recovery, gasification and pyrolysis which produce energy (fuels, heat and power) and materials from waste; some backfilling operations



**Stage 5: Disposal:** Landfill and incineration without energy recovery

**Table 27: Waste hierarchy**

## 7.3

# Key Policy Consideration: Reducing and Managing Waste

- 7.3.1 London Plan Policy SI 7 encourages waste minimisation and waste prevention through re-use of materials and using fewer resources. It also requires developments to design adequate and easily accessible storage space and collection systems.
- 7.3.2 Developments, as a minimum, should separate the collection of dry recyclables and food. Provision needs to take account of storage needs identified for current residential collections and meeting the future higher recycling standards. Apart from squandering resources, waste transport, treatment and landfill disposal all contribute to harmful greenhouse gas emissions.
- 7.3.3 In addition to relevant legislation, the council's residential waste and recycling storage guidance provides clarity when planning and designing a new development, undertaking refurbishment, or modernising or changing the use of a building. Proposals for residential developments are encouraged to contact the council's Neighbourhood Management team in the first instance for information on local refuse collection contractors.
- 7.3.4 Major residential developments should address waste and recycling storage and collection in a Site Waste Management Plan (SWMP). It should demonstrate that minimum storage and collection requirements have been met. The applicant should engage with the council's Refuse team and Transport team at the early stages of design to overcome any challenges.
- 7.3.5 A Turning Assessment (using AutoTurn) may be required in cases where access roads present challenges of reversing. A vehicle dimensions chart is provided in Appendix 2. In cases where large collection vehicles are accessing and egressing a development, a Swept Path Analysis may be required.
- 7.3.6 Minor residential developments are encouraged to address waste management in a Design & Access Statement.
- 7.3.7 Commercial developments should address waste and recycling storage and collection in a Delivery and Servicing Plan. It should demonstrate waste management of the premises for relevant types of business waste.
- 7.3.8 Developers should have regard to the following requirements, in line with the council's guidance for residential properties and meet the Annex 1 capacity requirements (see **Table 28** and **Table 29**). The list is not exhaustive and other measures should take into consideration of best quality design and effective management.

## Residential and Commercial Waste

- a) Encourage reduction in the volume of refuse;
- b) Provide adequate sorting and re-use facilities at source;
- c) Provide adequate space to accommodate required number of bins and ample head height to allow for the lids to be lifted;
- d) Incorporate innovative waste management systems such as piped underground refuse collection systems;
- e) High quality waste facilities should be visually attractive, ventilated, well-lit, easy to clean flooring, should not detract from their immediate surroundings and be within the footprint of the building;
- f) Waste storage should be sited on ground floor, with clear access (for all emergency services), and to cause minimum nuisance;
- g) Provide individual or community composting facilities;
  - For residential development with private gardens, provide an area, away from windows/doors or ventilation intakes for habitable areas, for the placement of home composting bins to compost food and garden waste;
  - For residential development without private gardens, facilitate composting compliant with Animal by-product Regulations (2005), register compost scheme with the EA to acquire waste management licence or environmental permit or an exemption;
- h) Provide internal and external storage<sup>35</sup> space facilities for the source separation and storage of different types of household waste including non-recyclable, recyclable and composting material;
- i) Collection arrangements for non-recyclable and recyclable material should be easily accessible by collection vehicles and operatives;
- j) A drop kerb near as possible to the collection point in accordance with Health and Safety at Work Regulations. An acceptable pull length distance for collection crews is 10m for 1,100L containers and 20m for 140 and 240L (two wheeled containers);
- k) Access roads to accommodate collection vehicles, avoiding vehicles reversing, and to address traffic and public safety, as demonstrated in a Turning Assessment;
  - l) Access roads and pavements should be a reasonable gradient for ease access for collection vehicles. This applies to access routes inside the development as well;
- m) Areas in front of refuse storage areas should be flat and level to facilitate movement of wheeled containers;
- n) The proposed storage space, collection point, collection routes for vehicles, distance between collection point and storage area should be clearly marked and illustrated in any submission drawings;
- o) Include information in a management plan of the responsible party for transporting waste and recycling to a collection point in cases of storage at basement level;
- p) The calculations made to determine the overall storage allowance should also be submitted;



- q) Refuse and recycling storage area requirements and the number of refuse and recycling containers should meet Brent's collection regime of one collection per week of each waste stream. This is for large developments comprising more than eight households. Inadequate refuse storage areas with insufficient room to hold the correct number of containers will result in additional collections that are chargeable;
- r) Planning applications where commercial waste will also be generated will require separate storage and collection arrangements;
- s) Planning applications where clinical waste is likely to be generated will require separate storage and collection arrangements;
- t) Residential conversions and multi-occupancy households must meet the guidance requirements;
- u) External storage areas should not interfere with pedestrian or vehicle access;
- v) Avoid providing cycle storage in bin storage areas;
- w) Adequate provision of access for disabled and elderly people allowing manoeuvre of a wheelchair;
- x) Enable cleaning of bins with suitable water supply and drainage for where all run-off must flow towards a drainage point;
- y) Support for bulky waste disposal through signposting relevant collection contact details;
- z) Access agreements agreed with Recycling and Waste services before planning approval;
- aa) Inform the council's Building Control team of completion of the new development; and
- ab) Contact the council's Neighbourhood Management team to organise the delivery of the necessary containers.

7.3.9 All residential development should provide refuse storage and receptacle capacity requirements based on number of units. They should be fitted with separate bins in line with the below listed requirements:

Type of development	Requirements <i>(mm = millimetre, m = meter, L = litre)</i>
Residential development (over 8 households)	<ul style="list-style-type: none"> <li>• External space: 60L per bedroom for residual waste and 60L for dry recycle and 23L container kerbside for organic food waste;</li> <li>• Internal space: 30L per household for residual waste and 30L for dry recycle and 5L kitchen caddy for organics;</li> <li>• Lift to accommodate minimum 1,100L capacity and porter space;</li> <li>• Collection operatives should not be required to move wheeled bins of up to 240L more than 20m or 1,100L bin more than 10m;</li> <li>• Provide reasonable space for collection vehicle: minimum clearance height of 2,920mm for, access path to be minimum 2m width, gradient not to exceed 1:14;</li> <li>• Access locks preferably to be keypad access for refuse storage areas;</li> </ul>
Residential conversions and multi occupancy households (up to 8 households)	<ul style="list-style-type: none"> <li>• Minimum room height 1,810mm for 240L bins;</li> <li>• Minimum room height 2,390mm for 1,100L bins;</li> <li>• External space: 120L per bedroom for residual waste and 120L for dry recycle, 23L container kerbside;</li> <li>• Internal space: 30L for residual waste and 30L for dry recycle and 5L kitchen caddy for organics;</li> </ul>
Single household	<ul style="list-style-type: none"> <li>• External space: 240L/bedroom for residual waste and 240L for dry recycle, 23L container kerbside;</li> <li>• Internal space: 30L for residual waste and 30L for dry recycle and 5L kitchen caddy for organics.</li> </ul>

**Table 28: Waste storage space requirements for different types of development**

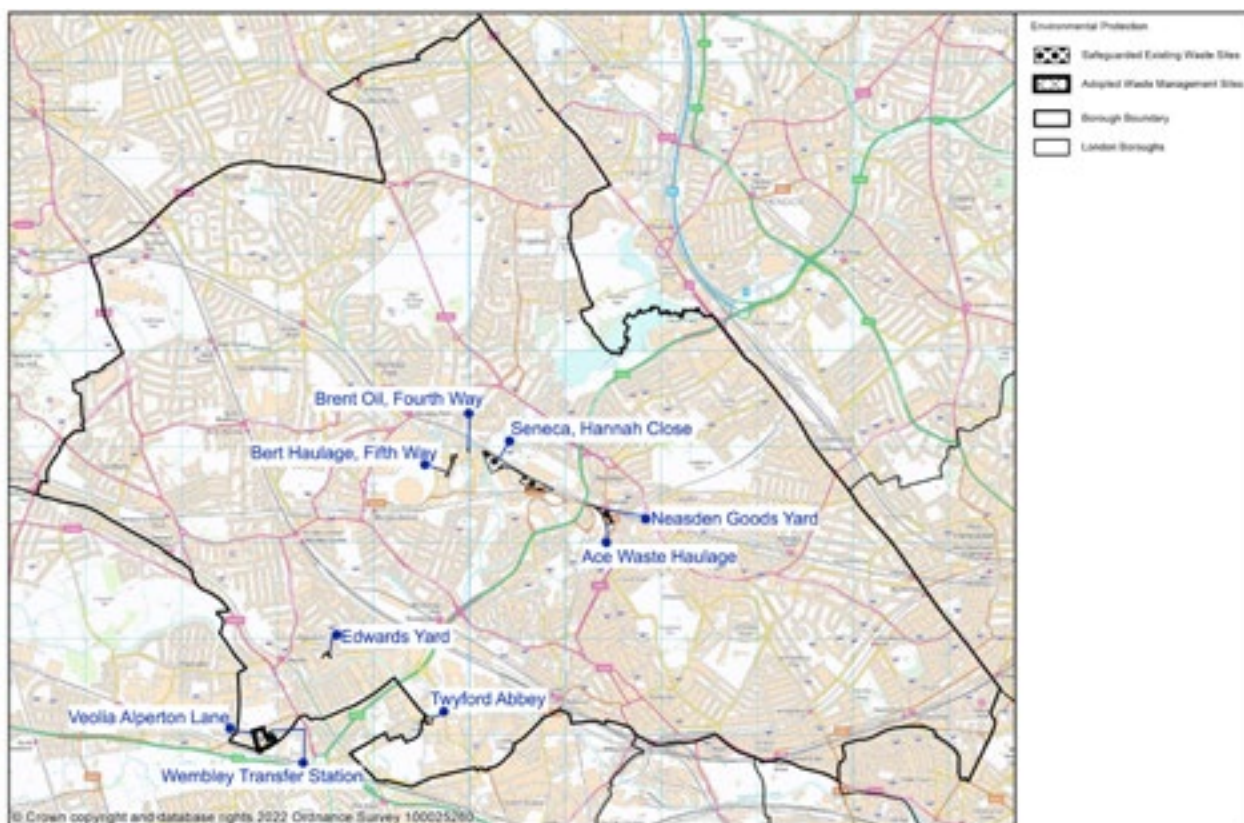
7.3.10 The council supplies waste containers at a cost in the capacity of the following:

Type of bin	Capacity (L) and size (mm) (mm = millimetre, L = litre)
Wheeled bins	<ul style="list-style-type: none"><li>• 140L (L550 x W480 x H1,070)</li><li>• 240L (L730 x W585 x H1,100)</li><li>• 1,100L (L1,370 x W1,025 x H1,460)</li></ul>
Kerbside container (food caddy)	<ul style="list-style-type: none"><li>• 23L (W320 x H405 x D400)</li></ul>
Home compost bins	<ul style="list-style-type: none"><li>• 220L (H900, Diameter 740)</li><li>• 330L (H1,000, Diameter 800)</li></ul>

**Table 29: Bin types, capacities and sizes**

## 7.4 Key Policy Consideration: Safeguarded Waste Sites

- 7.4.1 National policy requires boroughs to have regard to the waste apportionment set out in the London Plan. This is the proportion of total household, commercial and industrial waste.
- 7.4.2 The Mayor is committed to sending zero biodegradable or recyclable waste to landfill by 2026. Key aspects of how this can be achieved are through addressing cross-boundary flow through joint working, a circular economy approach (see **Section 7.5**) and use for energy recovery through renewable energy generation from organic/biomass waste (see **Chapter 5**).
- 7.4.3 London Plan Policies SI 8 and SI 9 protect existing waste management sites and requires their capacity to be optimised. The London Waste Map and the WLWP shows the locations of permitted waste facilities and allocated sites (see **Map 5**). It requires local authorities to work together to allocate sufficient sites, reduce waste through circular economy, areas and facilities to manage the apportioned tonnage of waste allocated in Table 9.2 of the London Plan.



**Map 5: Safeguarded existing waste sites and adopted waste management sites**

7.4.4 Policy SI 8 supports development proposals for new waste sites or capacity increase through meeting the following criteria:

- a) Assessing the existing nature of activity, scale and location;
- b) Implementation of waste hierarchy and its contribution to circular economy;
- c) Achieving a positive carbon outcome where re-use and recycling high carbon content material;
- d) Minimising the impact on the surrounding area's amenity; and
- e) Limiting transport and environmental impacts, including exploring use of rail and waterways.

7.4.5 The council's joint WLWP plans for all waste in the plan area up to 2031. The WLWP policies are a key consideration and form part of the council's planning policies. It sets out a list of existing sites, allocated sites and policies regarding:

- Provision of new waste management capacity (Policy WLWP 1);
- Safeguarding and protecting all existing and allocated waste sites within west London (Policy WLWP 2);
- Location of waste development (Policy WLWP 3);
- Ensures high quality development (Policy WLWP 4);
- Decentralised energy (Policy WLWP 5);
- Sustainable site waste management (Policy WLWP 6); and
- NPPF requirements (Policy WLWP 7).

- 7.4.6 London Plan Policy SI 9 and WLWP Policy 2 protects existing and allocated waste management sites for continued use for waste. Their redevelopment and proposals for new waste sites should adhere to the requirements listed in these policies. A Waste Management Facility Relocation Strategy should accompany the planning application.
- 7.4.7 In some cases, the EA's historic permit for permitted capacity on waste sites has not been updated. As such, the council, in line with London Plan Policy SI 9, require the compensatory capacity to be calculated as the maximum achievable throughput of the site proposed to be lost. This is calculated over the past five years.
- 7.4.8 In cases where this is not possible, the potential capacity of the site should be appropriately addressed. The applicant will be expected to undertake a desktop study analysing tonnage data, comparable practical capacity of waste facilities and/or comparable throughput of different waste facilities. Appropriate engagement with the EA will also be required.
- 7.4.9 For new waste facilities, Strategic Industrial Locations (SIL) will provide the main opportunities. Intensification of existing waste management sites also present an opportunity.
- 7.4.10 Waste processing facilities should be well designed, respect context, not be visually overbearing, should contribute to the local economy and follow the Agent of Change principles (London Plan Policy D13).

## 7.5 Key Policy Consideration: Circular Economy

- 7.5.1 London Plan Policies D3 and SI 7 promote a circular economy (CE) as a change in the way we produce, consume and dispose both goods and services. A circular process creates a continuous flow of materials where existing materials are retained leaving a minimum of residual waste. It results in extended life of the initial material production, minimises waste and takes the burden away on resources. There are also overall benefits to reducing carbon emissions and transportation demand.
- 7.5.2 Policy SI 7 requires a Circular Economy Statement (CE Statement) for referable planning applications. Smaller developments and businesses are also encouraged to adopt the principles of a CE. See **para 7.5.7** for the CE Statement requirements.

7.5.3 Policy SI 7 and the Circular Economy Statement LPG set out the overarching CE principles that support the implementation of multiple design approaches for existing and new developments (see **Table 30**). These are expected to be adopted for each project, development aspect, layers or uses. The broader CE principles include:

- a) Build in layers<sup>36</sup> where parts of building can be replaced where necessary;
- b) Design out waste;
- c) Design for longevity to extend the useful life of each product;
- d) Design for disassembly;
- e) Design for adaptability or flexibility for current and future demands; and
- f) Use innovative systems and elements for re-use.

7.5.4 The CE hierarchy sets out the building approaches that maximises the use of existing material. Making the best use of the land is an overall consideration that needs to inform the retention of existing buildings.

## Best Use of Land

**Stage 1:** Retain and repair



**Stage 2:** Partially retain and refurbish



**Stage 3:** Disassemble and re-use (*on-site, on a nearby site or off-site*)



**Stage 4:** Remanufacture



**Stage 5:** Demolish (*on-site, on a nearby site or off-site*)

**Table 30: Circular economy hierarchy for existing materials**

Design approach	Multiple approaches and principles	Considerations
Existing built structures  (lowest carbon option)	Retain and retrofit	Vast majority of the building's fabric retained, with refurbishment or retrofitting for the same or new uses through restoring, refinishing and future proofing
	Partially retain and refurbish	Significant quantities of carbon-heavy aspects of the building (floors and substructure) retained in place, with replacement of some elements (walls or roofing) and significant refurbishment adding floors or extensions
	Disassemble and re-use	Careful selective deconstruction of the building, material, and then re-using  If re-use is not possible, materials separated for processing and recycling into new elements  Re-use ideally on the site or, where this is not possible, off-site (with nearby sites preferred)
	Demolish and recycle	Demolition with elements and materials processed for use on the site or on another site

**Table 31: Design approaches and principles for existing built structures**

- 7.5.5 A decision tree is provided in the CE Statement LPG that should be used to determine the approaches. See Figure 4 for existing built structures and see Figure 5 for new developments.
- 7.5.6 The CE Statement should reflect these principles, the CE hierarchy and design approaches based on the type of proposal. The relevant evidence base and template is required at each of the various planning stages.



Design approach	Multiple approaches and principles	Considerations
New developments (adapted to extend their life)	Building relocation	Designing to allow the whole building to be used on a different site, either by moving as a whole or disassembling into large modules
	Component or material reuse	The reuse and preparation of a product in its original form with minimal reprocessing. Reused as a whole; redeployed as modules; or reused as a kit of parts on one or more different sites
	Adaptability	A building structure designed to be easily altered to prolong its life
	Flexibility	A building floorplates designed to allow easy rearrangement of its internal fit-out and arrangement to suit the changing needs of occupants
	Replace-ability	Designing for easy removal and upgrade, and ideally to be reused, remanufactured or recycled on a part-by-part basis
	Disassembly	Designed to allow the building and its components to be taken apart with minimal damage to facilitate reuse or recycling
	Longevity	Designing to avoid a premature end of life for all components through considering maintenance and durability

**Table 32: Design approaches and principles for new developments**

### Circular Economy Statement Process

7.5.7 A CE Statement is required to be submitted at each stage to the GLA.<sup>37</sup>  
The CE Statement must include two parts:

- 1) **Written report:** A narrative and information on calculations, studies, supporting evidence, project details table<sup>38</sup> in case of multiple buildings, explain different approaches being adopted for different buildings with reference to site plan, evidence on engagement with stakeholders and highlight any shortcomings and/or other social benefits of the proposal;
- 2) **CE template spreadsheet:** Relevant tab(s) filled in at each stage. Each tab contains a number of tables where information should be recorded (see the CE template spreadsheet).



7.5.8 The supporting documents are submitted at various stages of development:

- Pre-demolition Audits;
- Pre-redevelopment waste audits;<sup>39</sup>
- Bill of Materials;
- End of Life Strategy;<sup>40</sup>
- Operations Waste Management Plan;
- Recycling and Waste Management Plan; and
- Recycling and Waste Reporting.

7.5.9 A CE Statement must be submitted at the following stages and should be submitted with an application undertaken by an accredited assessor:

**Stage 1: Preparation:** Submit a Draft Circular Economy Statement at pre-application stage

- Engage early with LPA on the retention, demolition and making the best use of land;
- Complete and submit the 'pre-application stage' tab in the CE template:
- Confirm details about the site, circular economy design approaches, principles, building layers and relevant supporting material;
- Ideally highlight CE targets and commitments, Pre-demolition Audit and Pre-redevelopment Audit; and
- Outline how the proposal will design out waste at each module stage



**Stage 2: Design:** Submit a detailed Circular Economy Statement at full or outline application stage

- Complete and submit the 'outline or detailed' stage tab in the CE template;
- Confirm details in all tables including design approaches, building layers, Pre-demolition Audit and Pre-redevelopment Audit, estimated Bill of Materials, End of Life Strategy, Operational Waste Management Plan, estimated Recycling and Waste Reporting, CE targets and commitments;
- Other supporting information should include Site Waste Management Plan, building weight calculations, scenario modelling demonstrating adaptability and lean design options appraisal, re-used or recycled content calculations;
- Commitment to achieve the relevant targets (depending on the operational activity) set out in London Plan Policy SI 7 and London Environment Strategy;

- Demonstrate that measures such as consolidated, smart logistics and community-led waste minimisation schemes have been explored;
- Achieve 'pioneering' status;<sup>41</sup>
- Align outcomes with WLC Assessment;
- In case of outline application, there is no requirement to submit End of Life Strategy, Operations Waste Management Plan;
- The metrics to be used to quantify or monitor performance should be included; and
- Confirm who will be providing the information at post-construction stage.



**Stage 3: Post-construction:** Submit Circular Economy Statement upon commencement of RIBA Stage 6

- Complete and submit the 'post-construction' stage tab in the CE template within three months of practical completion and prior to occupation;
- Update and confirm information provided at planning stage: CE targets performance reporting, actual Bill of Materials, actual recycling and waste reporting and lessons learnt and key achievements; and
- Any changes in design following the submission should be accounted for in the post-construction CE Statement.

### **Table 33: Circular economy methodology**

7.5.10 The Circular Economy Statement LPG draws on a close relationship between circular economy and whole life cycle. As such, the same Bill of Material should be used for assessments of both. The circular economy outcomes should inform the end of life scenarios. This will also assist in reducing emissions in Whole Life Cycle Modules A-C and D (see **Section 5.7**).

## 7.6 Key Policy Consideration: BREEAM and Other Accreditations

- 7.6.1 Major planning applications will be assessed against frameworks to ensure that waste management needs are adequately addressed. Where deemed feasible, developments are actively encouraged to pursue accreditation with:

### Accreditation

- A** BREEAM New construction for individual buildings
- B** BREEAM Refurbishment and Fit out for residential and non-residential existing buildings, including conversions
- C** BREEAM Net zero carbon
- D** BREEAM Construction waste management
- E** BREEAM Recycled aggregates
- F** BREEAM Speculative floor & ceiling finishes
- G** BREEAM Adaptation to climate change
- H** BREEAM Operational waste (residential)
- I** BREEAM Operational waste (non-residential)
- J** BREAAM Whole Life Performance
- K** Passivhaus (new built)
- L** Passivhaus EnerPhit (building retrofit)
- M** Home Quality Mark

## 7.7

# Planning to Mitigate Waste

- 7.7.1 In assessing planning applications that generate waste, the council will have regard to the Environment Act 2021, NPPF, London Plan and Local Plan. Other guidance will include LPGs, local strategies, Brent Design Guide SPD1 and this SPD.
- 7.7.2 The following assessments will be required depending on the key policy considerations, application type and scale of development:
- Sustainability Statement;
  - CE Statement;
  - Site Waste Management Plan (SWMP);
  - Delivery and Servicing Plan;
  - Turning Assessment;
  - Swept Path Analysis;
  - Waste Management Facility Relocation Strategy; and
  - Design & Access Statement.
- 7.7.3 In addressing the key policy considerations, all supporting evidence including calculations, surveys, mitigation hierarchy, justifications, maintenance, monitoring and reporting must be submitted to the council.

## 7.8

# Development Management

7.8.1 At each planning application stage, the following will be required:

- **Pre-applications:** Preliminary Sustainability Statement, Draft CE Statement, Preliminary, Pre-demolition Audit, Preliminary SWMP, Preliminary Delivery and Servicing Plan, Preliminary Turning Assessment, Swept Path Analysis and Preliminary Waste Management Facility Relocation Strategy.
- **Outline applications:** All assessments including an Implementation Plan explaining how the key policy considerations will be secured at the detailed design and application stages and energy masterplan for the area to assess the potential environmental effects. Planning conditions securing revision assessments as part of a Reserved Matters application in regards to a change in layout, number of units, use class, Transport Strategy or Energy Strategy.
- **Full applications:** Sustainability Statement, Detailed CE Statement, Pre-demolition Audit, SWMP, Delivery and Servicing Plan, Turning Assessment, Swept Path Analysis, Waste Management Facility Relocation Strategy, Bill of Materials, End of Life Strategy, Operations Waste Management Plan, Recycling and Waste Management Plan and Recycling and Waste Reporting.
- **Phased development:** Each phase should demonstrate through relevant assessments compliance with the key policy considerations. All assessments to include calculations for the development as a whole and additional table showing calculations for all phases.
- **Post-construction:** Circular Economy Statement.

- 7.8.2 The planning requirements for each type of proposed development are listed in tables below. These set out measures for:

### Referable Applications

#### Major Development

#### Minor Development

#### Change of Use

#### Permitted Development

### Referable Applications

- A** Follow the waste hierarchy;
- B** Follow the CE hierarchy and principles;
- C** Submit CE Statement, Pre-demolition Audit, SWMP, Delivery and Servicing Plan, Turning Assessment, Swept Path Analysis and Waste Management Facility Relocation Strategy;
- D** Applications with refurbishment should aim to meet London Plan Policy SI 2.

### Major Development

- E** Follow the waste hierarchy;
- F** Follow the CE hierarchy and principles;
- G** Submit CE Statement, Pre-demolition Audit, SWMP, Delivery and Servicing Plan, Turning Assessment, Swept Path Analysis and Waste Management Facility Relocation Strategy;
- H** Applications with refurbishment should aim to meet London Plan Policy SI 2.

## Minor Development

- I** Follow the waste hierarchy;
- J** Maximise the opportunity to meet net zero carbon target by considering CE hierarchy and principles;
- K** Encourage BREEAM Domestic Refurbishment 'Excellent' (where feasible);
- L** Identify location of refuse storage and collection point.

## Change of Use

- M** Where change of use affects the envelope of a building or its building services will be encouraged to follow the waste hierarchy and consider CE hierarchy and principles;
- N** Encourage BREEAM Domestic Refurbishment 'Excellent' (where feasible);
- O** Identify location of refuse storage and collection point.

## Permitted Development

- P** Where permitted development affects the envelope of a building or its building services they are encouraged to follow the waste hierarchy and consider CE principles;
- Q** Identify location of refuse storage and collection point.

## 7.9

# Planning Conditions and Obligations and Monitoring Requirements

## Planning Obligations

### **R** Design phase:

- On-site measures outlined in assessments in cases where the design of the scheme is evolving;
- Management and maintenance requirement;
- To ensure commitments in the approved assessments;
- Where indicative values are used at the application stage, final values will be required by condition;
- Approval of a referable outline planning permission, securing the submission of a CE Statement with each reserved matters application.

### **S** Construction phase:

- Required to meet the mitigation measures identified in the approved assessments to manage and mitigate waste;
- Waste facilities to be provided before occupation.

### **T** Post-construction phase:

- Submit CE Statement at post-completion stage.

### **U** Operational phase:

- Management and maintenance.

## Monitoring

- V** Submit a post-construction monitoring report prior to occupation to GLA with any supporting evidence.



# **8. Other Environmental Impacts**

## 8.1 Policy Overview

### National Policy & Guidance

Environmental Protection Act 1990

Control of Pollution Act (CoPA) 1974

Water Resources Act 1991

Pollution Prevention and Control Regulations 2000

Control of noise at work Regulations 2005

Clean Neighbourhoods and Environment Act 2005

Noise and Statutory Nuisance Act 1993

Noise Act 1996

The Environmental Permitting (England and Wales) Regulations 2016

Air Quality (England) Regulations 2002 (as amended)

Air Quality Standards Regulations 2010 (as amended)

Environmental Permitting (England and Wales) Regulations 2016 (as amended)

NPPF Para 183, 184 and 185

Defra Noise policy statement for England

EMAQ Control of Odour and Noise from Commercial Kitchen Exhaust Systems

IAQM Guidance on the assessment of odour for planning

Public Health England Strategy

ILP guidance notes for the Reduction of Obtrusive Light GN01-21

### London Plan Policy & Guidance

London Plan Policy SD1 Opportunity Areas

London Plan Policy D6 Housing quality and standards (Table 3.2)

London Plan Policy D8 Public realm

London Plan Policy D10 Basement development

London Plan Policy D13 Agent of Change

London Plan Policy D14 Noise

London Plan Policy E7 Industrial intensification, co-location and substitution

London Plan Policy G8 Food growing

London Plan Policy HC6 Supporting the night-time economy

London Plan Policy SI 8 Waste capacity and net waste self-sufficiency

London Plan Policy T2 Healthy Streets

London Plan Policy T7 Deliveries, servicing and construction

Control of Dust and Emissions During Construction and Demolition SPG, 2014

IAQM Guidance on the assessment of dust from demolition and construction

The Code of Construction Practice

### Local Plan Policy & Guidance

Brent Local Plan Policy DMP1 – Development Management General Policy

Brent Local Plan Policy BSUI2 – Air Quality

- 8.1.1 The Environmental Protection Act 1990 gives local authorities the responsibility to manage environmental health. In order to provide good health and high quality of life, effective management of adverse pollution impacts needs to be carefully considered. This can include factors likely to impact health such as noise, odour, dust, vibration, light pollution, contamination, waste and air pollution (for waste: see **Chapter 7**; for air quality: see **Chapter 2**).
- 8.1.2 The NPPF requires new developments ensure that they are appropriate for their location taking into account the likely effects of pollution on health, living conditions and the natural environment. These adverse impacts could arise from the new development or the existing environmental conditions of the location.
- 8.1.3 As part of pollution control, the EA controls some types of emissions and operations of regulated facilities<sup>42</sup> through environmental permits. The permit may set source limits on emissions to air, water or land. In the case of a risk, an Emissions Management Plan may be required when applying for a permit to demonstrate how risk will be controlled.
- 8.1.4 Nuisance generated by construction activities can be significant and continuous over a long period. CoPA 1974 gives local authorities powers for controlling noise and vibration from construction sites. The Code of Construction Practice sets out the standards and procedures to which a developer or contractor must adhere in order to manage the potential environmental impacts of construction works.
- 8.1.5 The London Plan recognises that good design can mitigate impacts of nuisances from both internal and external sources. London Plan Policy D13 sets out agent of change principles. It requires a sensitive approach to managing change in surrounding areas and development to:
- a) Ensure good design mitigates and minimises existing and potential nuisance;
  - b) Allow established nuisance generating uses to continue without putting restrictions on them and new noise and nuisance generating development near noise sensitive uses to adapt impact mitigation and management measures; and
  - c) Separate new noise sensitive uses in development from existing noise-generating businesses and uses through distance, screening, layout, sound proofing, insulation and other acoustic design measures.

8.1.6 Local Plan Policy DMP1 expects all new developments to reduce adverse pollution impacts and adapt the 'agent of change' approach. The Environmental Health service considers a range of matters that cause unfavourable conditions including:

- a) Noise, vibration and dust during construction of the proposed development;
- b) Noise or vibration from the operation of the proposed development;
- c) Noise or vibration from fixed plant (e.g. ventilation systems);
- d) Noise incidental to the proposed development (e.g. because of increased traffic/people);
- e) Noise from external sources affecting the proposed development;
- f) Electromagnetic frequency (EMF) including telecommunications masts;
- g) Cooking fume/odour extraction, treatment and dispersion details;
- h) Dust, odour, smoke, fumes, etc. from industrial developments;
- i) Other causes of detriment to amenity such as light, dust, etc.
- j) Air-quality issues;
- k) Restrictions on hours of operation, opening, delivery and despatch;
- l) Potential land contamination.

8.1.7 To best address these matters, new buildings need to be carefully designed externally and internally. Specialist consultants should be part of the project from the inception stage to plan for early mitigation of environmental nuisance. The following section sets out various key policy considerations related to:

- Noise;
- Odour;
- Dust;
- Vibration;
- Light pollution; and
- Potential land contamination.

## 8.2 Key Policy Consideration: Noise

- 8.2.1 The Noise Policy Statement for England (NPSE) applies to all forms of continuous or intermittent internal and external noise. The Noise and Statutory Nuisance Act 1993 addresses vehicles, machinery and equipment on the road and audible intruder alarms.
- 8.2.2 London Plan Policies D13 and D14 require new residential development to reduce, manage and mitigate noise. Applicants should include existing sources of noise in identifying overall ambient noise levels for both the current exposure and that expected in the development's lifetime. In addition to external noise, noise transmission between adjoining users, such as flats should also be considered.
- 8.2.3 Proposals involving noise-generating uses will need a Noise Impact Assessment (NIA) using BS 4142:2014<sup>43</sup> and BS 8233:2014<sup>44</sup> guidance. NIAs determine the impact of specific noise sources from the proposed development on noise sensitive receptors nearby (communal, residential or businesses). A Noise Management Plan will be required to effect reasonable long-term measures to reduce the impact of noise associated with the premises.

### Step 1: Environmental Noise Survey Report or Acoustic Report

A baseline noise survey to measure:

- The background noise and ambient sound levels
- Identify nearest noise sensitives properties and measure noise level from the nearest noise sensitive window



### Step 2: Engage with Nuisance Control Team

- Confirm assessment methodology
- *EA engagement may be required on case-by-case basis*



### Step 3: Gather relevant source data for the proposed new installation or activity

- In case of industrial plant, confirm any measurements of plant in operation. If the plant is not yet operational, manufacturer's sound levels should be utilised



Sustainable Environment & Development SPD



**Step 4:** Determine predicted noise levels through calculation or modelling

- To determine the impact of new development on existing noise climate



**Step 5:** Noise Management Plan

- Based on meeting or exceeding regulation requirement, it should set out mitigation measures
- Where relevant, provide long-term management of mitigation measure



**Step 6:** Submit NIA and Noise Management Plan to LPA for approval

- At pre-application stage: submit Noise Survey Report or Acoustic Report
- At application stage: Submit Noise Management Plan with Acoustic Report



**Step 7:** Adhere to planning conditions



**Step 8:** Where new industry or commerce is to be introduced into an area, an environmental assessment<sup>47</sup> will be required as part of the planning process to include noise impacts

Certain processes will also require an EA permit. In the case of a permit, carry out an Emissions Management Plan to submit to the EA

**Table 34: Noise impact assessment methodology**

## 8.3 Key Policy Consideration: Odour

- 8.3.1 London Plan Policies D13, E7 and SI 8 require development on or near industrial land or waste sites to assess the resulting effects of an odour source on surrounding users. It involves assessing existing baseline odour conditions, odour sources, location of receptors, prevailing winds and magnitude of odour effects. Mitigation measures can include careful consideration of the position of a stack to avoid low-level discharge, avoiding discharge in semi-enclosed areas and other controls. Where relevant, the use of a model<sup>45</sup> or empirical observations as odour assessment tools is encouraged, adapting the Source-Pathway-Receptor (S-P-R) concept.
- 8.3.2 Commercial kitchens also result in causing significant odour. Such proposals will involve ventilation, external extraction equipment or air conditioning units and, as such, will need to submit a Ventilation Strategy and Extraction Statement. Such uses should consider the EMAQ guidance on Control of Odour and Noise from Commercial Kitchen Exhaust Systems and the IAQM Guidance on the assessment of odour for planning.
- 8.3.3 In some cases, an Odour Management Plan (OMP) may be required, setting out mitigation control measures. This is likely where there is a significant risk of odour nuisance associated with plant or process failure or where it complements control measures, such as abatement systems. The EA's guidance on Odour Management: how to comply with environmental permit also sets out advice on odour management and OMP.

### **Step 1:** Prepare Ventilation Strategy and Extraction Statement detailing:

- Information on premises such as method of preparation and cooking, type of meal, number of meal served/day, proposed hours of operation, ventilation plant
- Internal arrangement (position, route and dimension), location of all filters and fan
- External arrangements including elevation drawings (roof plans and elevations) to show the size, location, and external appearance of plant and equipment
- Technical specifications, including noise generated and odour control compared to current levels and mitigation measures
- Measurement of distance of equipment from nearest neighbouring window
- Consider fire precautions to meet fire safety requirements





**Step 2:** Provide exhaust characteristics information detailing:

- Discharge stack height: flue height to be vertical and maximise height for better dispersion and dilution of odour, flue to be unimpeded by flue terminals, minimal bends and ducting, air discharge at minimum 1m height above the roof ridge within 15m of the vent serving the commercial kitchen<sup>48</sup>
- System operations (extract rate, use of dampers or speed fans, dwell time of gases in carbon filtration zone, volume of the kitchen and efflux velocity)
- Odour abatement techniques (for example, Odour counteractant or neutralising system: manufacture details, chemical name and COSHH data sheets of chemical used, anticipated delivery rate)
- Manufacturer specification and pre-filters product data including details of the flues, units and Electrostatic precipitators (where proposed)
- Where proposed, details of the carbon filters with product type, frequency and duration of use, volume of carbon (cubic metres), total mass of carbon in kilograms, surface area of panels exposed to exhausted air, dwell time of gases in filter and control setting and air exchange rate
- Cooker hood detailing length of appliance overhang, face velocity (metres per second), dimensions of opening hood
- Noise data: sound pressure levels at given distance, a 1/3 octave band analysis, noise level to be 10 dB(A) or greater below the measured background noise level at the nearest noise sensitive premises



**Step 3:** Engage with Nuisance Control Team

- Confirm assessment methodology
- *EA engagement may be required on case-by-case basis*



**Step 4:** Prepare an Odour Management Plan (OMP) (where relevant)



**Step 5:** Prepare Maintenance Schedule

- Detailing cleaning, inspection and servicing depending on usage and grease production







**Step 6:** Demonstrate additional control measures

- If not meeting above requirements, include further measures to reduce noise and odour



**Step 7:** Submit to LPA for approval

- Preliminary statement with pre-application and final statement and with planning application



**Step 8:** Adhere to planning conditions

**Table 35: Ventilation and extraction statement methodology**

## 8.4 Key Policy Consideration: Dust

- 8.4.1 Consideration of dust relates to the air quality (see **Chapter 2**) during and after a development's construction. It can have substantial temporary impacts; the most common impacts are increased particulate matter (PM) concentrations and dust soiling.
- 8.4.2 Depending on the risk of dust effects occurring, monitoring may need to be carried out during both demolition and construction activities. This will ensure that the applied mitigation measures are effective in controlling dust emissions, and that there are no significant impacts on the surrounding environment. This should be set out in a Construction Method Statement.
- 8.4.3 There may be instances where the development is very large and close to sensitive uses. In such cases, a Dust Monitoring Plan will be required prior to commencement. This will outline suitable and sufficient means of suppressing dust during operation.
- 8.4.4 Applicants should therefore provide details and/or specifications of the equipment and employ measures that mitigate the impacts of dust and fine particles generated. This needs to be in line with the GLA's Control of Dust and Emissions during Construction and Demolition SPG, 2014 and secured through planning conditions.

## 8.5 Key Policy Consideration: Vibration

- 8.5.1 Ground-borne vibration can be generated by a number of sources, including road and rail, construction activities, and various types of machinery. A Vibration Assessment may be required for developments that are located in close proximity to these. In addition, any plant installed should prevent the transmission of vibration into neighbouring premises.
- 8.5.2 Proposals near these locations will need to comply with BS 6472-1:2008 'Guide to evaluation of human exposure to vibration in buildings'. This provides methods of measuring and evaluating the frequency of continuous, intermittent and impulsive vibration. Residential development should be designed to ensure the vibration levels stated in BS 6472-1:2008 (1Hz to 80Hz) are not exceeded. It should also consider the time of day and use made of occupied space in buildings, whether residential, office or workshop.

- 8.5.3 Construction sites should follow BS 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites – Part 2 Vibration'. This sets out the need for the protection against vibration of persons living and working near, and those working on, construction and open sites.

**Step 1: Vibration Survey**

Monitor continuous vibration to characterise:

- Vibration Dose Value (VDV)
- Peak Particle Velocity (PPV) vibration levels during day and night periods



**Step 2: Adhere to British Standard 6472-1**

- Acceptable vibration criteria within buildings



**Step 3: Engage with Nuisance Control Team**

- Confirm assessment methodology



**Step 4: Vibration Remediation Plan**

- Based on meeting or exceeding regulation requirement, it should out mitigation measures
- Provide an ongoing and longer-term management of mitigation measures



**Step 5: Submit Vibration Assessment to LPA for approval**

- Preliminary with pre-application and final version with full planning application



**Step 8: Adhere to planning conditions**

**Table 36: Vibration assessment methodology**

## 8.6 Key Policy Consideration: Light Pollution

- 8.6.1 Light pollution or obtrusive lighting is artificial light that is poorly designed, excessive or misdirected. It can cause glare, intrusion, waste energy and disrupt wildlife. At the same time, lighting may contribute positively in the overall visual impact of buildings, instil public safety and bring crime prevention benefits. The benefits and disadvantages should be balanced to avoid physiological and ecological problems.
- 8.6.2 The Clean Neighbourhoods and Environment Act 2005 addresses the adverse impacts of artificial light pollution.
- 8.6.3 There are standards and guidance to mitigate obtrusive lighting. According to the Institute of Lighting Professional's (ILP) publication Reduction of Obtrusive Light GN01-21,<sup>46</sup> good lighting practice is the provision of the right light, at the right time, in the right place, controlled by the right system. As such, measures to reduce light pollution may include:
- a) Careful choice of luminaire with the right optical distribution at the right mounting height to avoid light spilling beyond the boundary of the property;
  - b) Minimising glare by ensuring that the main beam angle of all lights directed towards any potential observer is not more than 70°;
  - c) Directing light downwards, minimising the upward spread;
  - d) Up lighting controlled with shields, baffles and louvres to reduce spill;
  - e) Uniform lighting, avoiding dark spots for safety;
  - f) Avoiding light spill near valuable ecological corridors;
  - g) Ensuring lighting systems are energy efficient, by considering energy demand and automated controls;
  - h) Illuminated Advertising Signage being in line with the Brent Shopfronts SPD3;
  - i) Lighting in sports facilities to be in line with Sport England Artificial Lighting Guidance;
  - j) Appointment of a lighting designer (encouraged); and
  - k) Domestic security lighting, in line with ILP GN09:2019: Domestic exterior lighting, getting it right.
- 8.6.4 Based on the environment zones outlined in the ILP guidance, parts of Brent fall into either zone E3 (suburban) or E4 (urban). The recommended maximum values of light parameters for the control of obtrusive light should fall within the light limits (see **Table 37**). To ensure that nuisance is avoided, in some cases, a Light Contour Map may be requested to show how the proposed lighting scheme will impact the surrounding residents.

Environmental Zone	Sky glow upward light ratio (ULR)/%	Illuminance in the vertical plane, $E_v$ Lx (Lux)	
		Pre-curfew	Post-curfew
E3 Suburban	5	10	2
E4 Urban	15	25	5

Environmental Zone	Luminaire intensity (projected area $A_p$ in sqm)		Building facade luminance pre-curfew	Sign luminance pre-curfew
	Pre-curfew	Post-curfew	Average, L (cd/sqm))	Average, L (cd/sqm)
E3 Suburban	10,000	1,000	10	800
E4 Urban	25,000	2,500	25	1,000

$E_v$  = Vertical Illuminance in Lux - measured flat on the glazing at the centre of the window

I = Light Intensity in Candelas (cd)

L = Luminance in Candelas per Square Metre (cd/m<sup>2</sup>)

Curfew = the time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by the local planning authority. If not otherwise stated - 23:00 hours is suggested

**Table 37: Light limitations**

## 8.7 Key Policy Consideration: Potential Contamination

- 8.7.1 New developments need to consider ground conditions and any risks arising from land instability and potential contamination. There is a duty of care attached to all contaminations. Although some contaminated sites are formally recognised as 'special sites', many are not. Potential contamination occurs where:
- a) Substances causing harm to people, property, protected species and archaeological sites;
  - b) Pollution of surface or ground water in close proximity to drinking supplies; and/or
  - c) Radioactive or hazardous material produced by businesses.
- 8.7.2 Land contamination is likely to arise from a previous use of the site, or an adjacent site, that had an industrial activity or landfill on it at one time or another. End users affected by this may be residential, allotments, parks, schools or where there is a change of commercial or industrial footprint.
- 8.7.3 The NPPF and the EA set out the guiding principles on land contamination. In addition to this, the Society of Brownfield Risk Assessment (SOBRA) Assessing Risk to Controlled Waters from UK Land Contamination under conditions of Future Climate Change 2022 is also relevant guidance. Any investigation should be carried on in accordance with the principles of BS 10175:2011+A2:2017: Investigation of potentially contaminated sites, BS 8601:2013: Specification for subsoil and requirements for use and BS 3882:2015: Specification for Topsoil.
- 8.7.4 Based on site-specific issues, e.g. the past use of the site, the nature and extent of the contamination and the proposed end use of the site, the applicant is recommended to seek advice from the Environmental Health Services. A contaminated land condition will be attached to any development where the risk of exposure to potential contamination exists for future site users.
- 8.7.5 The Environment Agency should be consulted if it is possible that:
- a) The pollution of surface or groundwater is involved;
  - b) The water environment is at risk of pollution;
  - c) An application is within a flood-plain area; and/or
  - d) Development is on a closed landfill or within 250 metres of a closed or active landfill.

- 8.7.6 Specialist help should be sought in determining potential contaminations, adequate site investigations and appropriate mitigation to inform the Land Contamination Assessment. No development will be allowed unless the assessment of the nature and extent of contamination has been submitted to and approved in writing by the council.

**Step 1: Preliminary Risk Assessment**

- Desktop study to establish former uses of the site and adjacent buildings
- Site survey to assess the potential risks from contamination on the basis of the proposed use and local circumstances
- Identify contaminants of concern
- Develop site specific conceptual model considering receptors and pathways
- Conclusions and recommendations



**Step 2: Adhere to British Standards and guidelines**



**Step 3: Engage with Environmental Health services**

- Confirm assessment methodology



**Step 4: Detailed site investigation (where necessary)**

- Design sampling strategy and take samples (based on the conceptual model)
- Undertake quantitative risk assessment – compare results of sampling with appropriate standards and identify unacceptable risks
- If necessary, identify appropriate remediation options available



**Step 5: Remediation Strategy**

- Select preferred remedial options and submit for approval
- Design and implement remedial works





- Commit to long-term monitoring, maintenance and reporting on unexpected contamination



**Step 6: Validation Report**

- Following completion of works, compile validation report to demonstrate works have been carried out according to remediation strategy, and detail any changes that occurred



**Step 7: Submit all evidence and assessment to LPA for approval**

- Preliminary with pre-application and final version with planning application to secure a safe development



**Step 8: Adhere to planning conditions**

**Table 38: Land contamination assessment**



## 8.8 Planning to Mitigate Nuisance

- 8.8.1 In addition to the supporting documents listed above, an Emissions Management Plan (required by the EA for a permit) and an Environmental Assessment must also be submitted for major developments (at various stages).
- 8.8.2 A Sustainability Statement for major developments and a Design & Access Statement for minor developments will be expected to provide evidence proportionate to the size of the development. These should set out how the proposal has addressed issues of nuisance to minimise their effects from existing sources and prevent the creation of new effects.
- 8.8.3 The most common nuisance-generating activities are from commercial, industrial, construction and demolition and waste sites. Various controls can be adapted to reduce potential nuisance from site-generated activities. The following section lists recommended measures. The list is not exhaustive and applicants are encouraged to be innovative where relevant:

### **Mitigation Measures: Commercial and Industrial**

- 8.8.4 Proposals for commercial or industrial activities should consider the local nuisance profile and the impacts from the proposed uses. The nuisance-generating sources most often include: ventilation systems such as a kitchen extractors; air-conditioning units; heat pumps; industrial processing plant; operational vehicles; generators; nurseries and schools or entertainment-generated noise.
- 8.8.5 Depending on the point source, and using the guidance set out in each section above, sites should include the mitigation measures and information listed below:
- a) Building Layout: impact from sources such as road traffic, railway and venues can be avoided by allowing adequate distance between the source and sensitive areas of the proposed development through building form and orientation;
  - b) Screening: use of less sensitive buildings, walls and landscaping closer to nuisance generating uses;
  - c) Internal Layout: locating non-noise sensitive rooms between the noise source and more sensitive activities;
  - d) Avoid stacking of conflicting uses: in order to eliminate internal noise transmission for example by not locating bedrooms below the living area of an adjoining flat;
  - e) Location of building services: building services such as air extraction ducting should be positioned away from sensitive windows and amenity;
  - f) Sound barriers: use of noise insulation techniques such as acoustic

- screens or membrane, acoustic wool cavity insulation, soundproof dry wall, dense board, soundproof floor underlay and sound absorber ceiling panels;
- g) Anti-social trading hours: provide sound insulation between the two properties to avoid noise nuisance and careful consideration of waste storage to preserve amenity quality;
- h) Ventilation or heating equipment outside a property: heat pumps, compressors, fans, expansion valves, ducting and condensers. An ASHP must meet noise level standards set by Microgeneration Certification Scheme standard MCS 020 or either be subject to noise assessment under BS 4142:2014;
- i) Neighbour amenity: ensuring safeguarding from the transmission of nuisance.

### **Mitigation Measures: Construction and Demolition**

- 8.8.6 Construction and demolition projects are also a major cause of nuisance. Prior to the commencement of the development a Demolition and Construction Management Plan will be required. This should include a Demolition and Construction Method Statement, Demolition and Construction Traffic Management Plan and a Demolition and Construction Waste Management Plan. These will outline measures that will be taken to control dust, noise and other environmental impacts of the development.
- 8.8.7 A Dust Monitoring Plan will also be required outlining measures that will be taken to control dust, noise and other environmental impacts of the development.
- 8.8.8 Using the BS 5228-1:2009+A1:2014 guidance, sites should include mitigation measures and information listed below:
  - a) Temporary sound barriers: Use of acoustic screens will be used to mitigate noise where necessary;
  - b) Limited work hours: working hours adapted based on council's requirements;
  - c) Operational practices: reduce machines in intermittent use, vehicle speed limits and anti-idling, traffic management schemes, materials carefully handled and information on disruptive activities communicated to the neighbours;
  - d) Vibration: vibration reduced through damping effect or anti vibration mounting; specify the plant or machinery that is to be used and also that is not to be used; level of vibration that can be emitted from the premises, alternative methods in case of change in ground conditions;
  - e) Plant specification: acoustic enclosures for generators, electrically powered where possible and all equipment to comply with noise emission limits;
  - f) Positioning of plant and equipment: away from noise-sensitive receptors, lorries and dumpers to be parked away from residential properties where possible;
  - g) Limit demolition and reduce waste: follow circular economy principles;

- h) Mitigate dust: use of rotary atomisers, vehicle speed restrictions, damping down materials, minimise drop height of materials by using chutes to discharge material, use of cover loaded vehicles and sheeting during haulage and employing particulate traps on HGVs, ensure crushing and screening machinery is located within the site boundary to minimise the impact of dust generation, installation of wheel/body washes to ensure dust/debris are not carried onto the road by vehicles exiting the site, filter extraction units before release into the atmosphere;
- i) Adopt the Considerate Constructors scheme: apply competent management, efficiency, awareness of local environmental issues and above all neighbourliness during the construction process;
- j) Contamination analysis, assessment, remediation and verification of the risks posed by any identified potential contamination;
- k) Compliance with Code of Construction Practice;
- l) Adopt sustainable ways such as collecting of rainwater to dampen down dusty areas, SuDS to collect run-off to not cause water pollution, adapt circular economy principle to reduce waste;
- m) Regular monitoring: the site manager to monitor nuisance generated at site on a continuous basis;
- n) Robust complaints process in place; and
- o) Good levels of housekeeping on-site and staff awareness of the need to prevent nuisances.

### **Mitigation Measures: Waste Sites**

- 8.8.9 London Plan Policy SI 8 requires developments proposals for new waste sites or capacity increases of existing sites to consider the nuisance impact on amenity in surrounding areas. This includes impacts of noise, odour, air quality and visual impact. Where sites are likely to produce significant nuisance, it is recommended to fully enclose them.
- 8.8.10 Dust from landfills/waste transfer stations, smoke and odour from incineration and pests can be some of the nuisance generated from waste. There are powers under the Environmental Protection Act 1990, Prevention of Damage by Pests Act 1949 and the Public Health Act 1936 to deal with accumulations of rubbish that may be a nuisance or have the potential to be prejudicial to human health. Waste site operators should:
- a) Regularly check the site for any waste accumulations, evidence of vermin, noise or odour;
  - b) Ensure operations are managed in a controlled and consistent manner, and in accordance with all relevant permits, licences and registered waste exemptions;
  - c) Ensure good levels of housekeeping on-site and staff awareness of the need to prevent nuisances;
  - d) Ensure waste sites with permitted installations are subject to the EA's guidance on environmental permits. The permit and planning application may require assessment of pollution abatement equipment such as dust filters that may be noisy.

## 8.9 Development Management

8.9.1 The following section aims to provide a clear and consistent approach for stakeholders to meet the borough's environmental health priorities. At each planning application stage, the following will be required:

- **Phased development:** Each phase should demonstrate, through relevant assessments, compliance with the key policy considerations. All assessments to include calculations for the development as a whole and additional tables showing calculations for all phases;
- **Outline applications:** Environmental Assessment, all assessments to include an 'Implementation Plan' explaining how the key policy considerations will be secured at the detailed design and application stage. Planning conditions may secure revision to assessments as part of a Reserved Matters application in regards to a change in layout, design, use class, transport or energy strategy;
- **Pre-applications:** Preliminary Noise Survey Report/Acoustic Report, Preliminary Ventilation and Extraction Statement along with survey, Vibration Survey, Contamination Preliminary Risk Assessment including Site Investigation and Remediation Strategy;
- **Full applications:** Emissions Management Plan (for EA permit), Noise Survey Report/Acoustic Report, Noise Management Plan, Ventilation and Extraction Statement, Odour Management Plan (OMP), Demolition and Construction Management Plan, Dust Monitoring Plan, Vibration Assessment, Light Contour Map and Land Contamination Assessment.

8.9.2 The planning requirements for each type of proposed development are listed in tables below. These set out measures for:

### Major Development

### Minor Development

### Change of Use

### Permitted Development

## Major Development

- A** Reduce exposure to noise, dust, contamination, smells, waste, light, other forms of pollution and general disturbance or detrimentally impacting on air or water quality;
- B** Comply with all relevant UK environmental legislation;
- C** Based on proposed use and scale of development, submit Noise Survey Report/ Acoustic Report, Noise Management Plan, Ventilation and Extraction Statement, Odour Management Plan (OMP), Demolition and Construction Management Plan, Dust Monitoring Plan, Vibration Assessment, Light Contour Map, Land Contamination Assessment;
- D** On case by case basis, an Emissions Management Plan (required by the EA for permit) and Environmental Assessment.

## Minor Development

- E** Reduce exposure to noise, dust, contamination, smells, waste, light, other forms of pollution and general disturbance or detrimentally impacting on air or water quality;
- F** Comply with all relevant UK environmental legislation;
- G** Based on proposed use and scale of development, submit Noise Survey Report/ Acoustic Report, Noise Management Plan, Ventilation and Extraction Statement, Odour Management Plan (OMP), Construction Method Statement, Dust Monitoring Plan, Vibration Assessment, Light Contour Map, Land Contamination Assessment.

## Change of Use

- H** Change of use of retail/commercial to takeaway with residential above should reduce exposure to noise, dust, contamination, smells, waste, light, other forms of pollution and general disturbance or detrimentally impacting on air or water quality;
- I** Comply with all relevant UK environmental legislation.

## Permitted Development

- J** Prior approval will need to apply to planning to determine if prior approval will be required in relation to noise impacts of the development and contamination risks on the site.

## 8.10 Planning Conditions and Obligations

- 8.10.1 Measures required to achieve environmental health requirements, where necessary, will be secured through planning conditions. Conditions may take a number of forms depending on the nature of the development and the policy requirement triggers.
- 8.10.2 Should the assessments demonstrate policy compliance subject to mitigation measures, these, where necessary, will be secured via conditions or in the case of a financial contribution, through a Section 106 planning obligation.
- 8.10.3 Where it has not been possible to identify appropriate and adequate mitigation measures on-site, the council will agree an offsetting payment. This financial contribution methodology is set out in the council's Planning Obligations SPD.
- 8.10.4 Section 106 and Section 278 agreements can be used to secure financial measures where appropriate.

### Planning Obligations

#### **K Design phase:**

- Defining standards of sound insulation against impact and airborne noise from the development and against external noise affecting the development;
- Ensure that the occupiers and users of the proposed development do not suffer a loss of amenity by reason of excess vibration from transportation sources;
- Requiring further details or samples of materials to be submitted and approved before work commences (or before the building is occupied);
- Works to be carried out according to the submitted plans;
- Where appropriate the requirements of a planning condition should be applied for the 'life of the development';
- Enclosure of a filter plant to reduce noise transmission to the development site;
- Any plant and ancillary equipment to be installed to prevent the transmission of noise and vibration into neighbouring premises;

## Planning Obligations (continued)

- A contaminated land condition for any development where the risk of exposure to potential contamination exists for future site users.

### **L** Construction phase:

- Construction Method Statement and Dust Monitoring Plan prior to the commencement of the development;
- Restricting:
  - hours of operation, times of delivery and/or despatch;
  - noise emissions by imposing noise limits;
  - the effect of noise by the provision of barriers or bunds; and
- Requiring:
  - that certain types of machinery shall or shall not be used;
  - a certain type of construction shall be used;
  - operations on-site to be undertaken in a certain way;
  - noise surveys and mitigation schemes to be undertaken prior to commencement of development in accordance with the relevant standards;
  - baseline odour or bio-aerosol surveys to be undertaken prior to commencement of development; and
  - air-quality modelling to be undertaken prior to commencement of development.

### **M** Operational phase:

- Restricting operations to within buildings;
- Requiring contaminated land investigations to be undertaken and remedial works carried out and verification reported prior to first occupation of the development.



## 8.11 Monitoring Requirements

- 8.11.1 To prevent a performance gap, monitoring will be required as listed below. Additional monitoring will be determined on a case-by-case basis and will need to be addressed in the assessments. This will generally depend on type of planning application, existing environmental conditions on and around the site, risks from the development, and financial implications of such monitoring.
- 8.11.2 The data recorded will also assist the council to inform the AMR (Authority Monitoring Report) annually.

### Monitoring

- N** Noise and/or vibration monitoring is often required for construction activities to demonstrate compliance with limits;
- O** Dust Monitoring Plan;
- P** Contamination Validation Report.

# **9. Appendix**

## **9.1 Checklist**

# Endnotes

- 1 UK Green Building Council, 2020. Building the Case for Net Zero: A feasibility study into the design, delivery and cost of new net zero carbon buildings. Available from: [https://ukgbc.s3.eu-west-2.amazonaws.com/wp-content/uploads/2020/09/05144621/Building-the-Case-for-Net zero\\_UKGBC.pdf](https://ukgbc.s3.eu-west-2.amazonaws.com/wp-content/uploads/2020/09/05144621/Building-the-Case-for-Net-zero_UKGBC.pdf)
- 2 JLL, 2020. The impact of sustainability on value. Available from: <https://www.jll.co.uk/en/trends-and-insights/research/the-impact-of-sustainability-on-value>
- 3 The TRAVL system and TRICS provide information based on observed trip rates from developments monitored and updated where necessary. The TEB does not include trips generated by deliveries, servicing, taxis or HGVs.
- 4 See the UK Habitat Classification system (UKHab); a tool that classifies species and habitat.
- 5 British Standard BS 8683 can also be used to as a reference to understand the process of implementing BNG.
- 6 Required by the Environment Act 2021
- 7 BS 42021:2022 provides recommendations on selection and installation for new developments.
- 8 See guidance produced by the Trees and Design Action Group
- 9 See Right Trees for a Changing Climate
- 10 See Brent Food Growing and Allotments Strategy
- 11 See Brent Food Growing and Allotments Strategy
- 12 Outline guidance on appraisal documents can be found at [www.agrotructur.com](http://www.agrotructur.com) and Food Foundation
- 13 Ecotone is a transitional area with great environment
- 14 See Section 5.6 of Brent's emerging Residential Amenity Space and Place Quality SPD
- 15 See CIEEM Guidelines on EcIA
- 16 See CIEEM BNG Report and Audit Template
- 17 Home Quality Mark (2018) Technical Manual (Flood Risk)

- 18 The greenfield run-off rate is the run-off rate from a site in its natural state, prior to any development.
- 19 In accordance with the West London SFRA, areas of surface water flooding within Brent are categorised as Flood Zone 3a where predicted for up to and including a 1 in 100 year return period.
- 20 New Homes Policy Playbook, UKGBC 2021
- 21 LETI Climate Emergency Design Guide
- 22 Active systems use purchased energy (including electricity and natural gas) to keep buildings comfortable.
- 23 Mayor of London Energy Assessment Guidance
- 24 Mayor of London WLC Assessment LPG
- 25 RICS PS: Whole life carbon assessment for the built environment 1st edition, November, 2017
- 26 The overheating modelling may make assumptions that limit the risk of overheating by increasing mechanical ventilation flow rates, while the energy modelling decreases the rates to reduce carbon emissions.
- 27 Home user guides to be accessible and include information on operational and compliance aspects such as energy design, water use, recycling and waste, sustainable DIY, emergency information
- 28 The specified airtightness targets should follow best practice, 5m<sup>3</sup>/hr.m<sup>2</sup> for natural ventilation and 3m<sup>3</sup>/hr.m<sup>2</sup> for mechanically ventilated spaces
- 29 Whilst this is a renewable technology, solid biomass systems are unlikely to be approved in London due to air quality concerns.
- 30 See Brent Planning Obligations SPD
- 31 “Active” is an actual socket connected to the electrical supply system that vehicle owners can plug their vehicle into. “Passive” is where the network of cables and power supply necessary so that at a future date a socket can be added easily.
- 32 The Mayor has also set up a partnership with ReLondon to support LPAs to improve waste and resource management and transition to low carbon circular city.
- 33 See the West London Waste Authority website for information on waste services for residents of Brent Council
- 34 More information on Brent’s approach to Bins, rubbish and recycling and Street Cleaning can be found on the Council’s website.

35 Internal storage space refers to indoor space prior to transfer of material to external bin. External storage space refers to space supplied for storing waste to accommodate all receptacles for collection.

36 A standard list of layers is defined in LPG Table 1 with reference to RICS New Rules of Measurement (NRM) (2012) building elements.

37 Submit to [circulareconomystatements@london.gov.uk](mailto:circulareconomystatements@london.gov.uk), email subject: "Circular Economy Statement" followed by planning application reference

38 Project details table includes number of use types, and floor area by use class/type. Units: tonnes per annum

39 See Circular Economy Statement LPG para 4.6. See resource: Code of Practice: Pre-development audits, BRE, July 2017

40 OneClick software uses default end-of-life scenarios

41 To evidence pioneering measures, applicants could submit as evidence product Material Circularity Index values and supporting information.

42 Regulated facilities: see the Environmental Permitting (England and Wales) Regulations 2016 (PART 1: Regulation 8)

43 British Standard (BS) 4142:2014: Methods for rating and assessing industrial and commercial sound methodology

44 British Standard (BS) 8233:2014: Guidance on sound insulation and noise reduction for buildings

45 Odour modelling tools can include Atmospheric dispersion modelling, screening models. Empirical or observational tools can include sensory sniff tests, community surveys or complaints analysis.

46 Also refer to CIE 150: 2017 Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations and CIE 126: 1997 Guidelines for Minimizing Sky Glow.

47 In line with the future requirements of the Levelling Up & Regeneration Bill, refer to Environmental Outcomes Report (EOR)

48 Where this is not possible (e.g. because of ownership or structural constraints), additional techniques will be required in order to reduce odours, such as an increase in efflux velocity and additional filters, etc.

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