Environment Supplementary Planning Document

2024 Update

January 2025

FAIRER WESTMINSTER

City of Westminster

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1 Introduction

1.1 Background

This Supplementary Planning Document (SPD) provides guidance for developers on how they can meet the environmental policies within Westminster's City Plan 2019 –2040. This SPD does not introduce new planning policies into the development plan, it is however, a material planning consideration. Regulations 11 to 16 of the Town and Country Planning (Local Planning) (England) Regulations 2012 are relevant in production of a Supplementary Planning Document. This document aims to help applicants understand how to make successful planning applications without adding unnecessarily to the financial burdens of development in line with the requirements of the National Planning Policy Framework (NPPF).

The Environmental SPD (ESPD) sits within a wider suite of policies, strategies and action plans to address local, national and global environmental issues. The ESPD takes account of these, ranging from the Climate Change Commission's 6th Carbon Budget to Westminster's Climate Emergency Action Plan. The Climate Emergency Action Plan provides details of how the council will address the climate emergency by accelerating carbon emission reductions and associated improvements in air quality across the city, through efficient buildings, clean and affordable energy, sustainable travel and transport, reduced consumption and waste and greening the city.

The ESPD has a specific planning role to play in delivering the council's environmental objectives, and it should be read together with the council's City Plan, Code of Construction Practice, Validation Checklist, Freight, Servicing and Deliveries Strategy, Air Quality Action Plan, Greening and Biodiversity Strategy, Sustainable Transport Strategy, Statutory Flooding Strategies and other relevant SPDs. The London Plan and associated guidance published by the Greater London Authority (GLA) should also be considered when devising or assessing development proposals. The ESPD, alongside the City Plan policies, represents a significant shift in the council's narrative on the environment and an uplift in the standards the council expects developers to adhere to. It gives much more prominence and weight to environmental issues than the previous planning framework and represents a game changer on issues such as sustainable retrofitting of historic properties or protection of tranquil spaces from noise pollution for which the council has only had informal guidance on previously.

Westminster has declared a climate and ecological emergency and has committed to becoming a carbon neutral council by 2030 and a carbon neutral city by 2040. Both the City Plan and this ESPD are reflective of this commitment and show a change of direction for environmental policy for the council. The ESPD shows the council's ambitions for the future of the built environment and shines a spotlight on the issues that all businesses must collectively work together to resolve to address the climate emergency. The ESPD will act as a catalyst for wider adoption of measures and technologies (such as carbon and pollution reduction) and encourages their adoption even where planning permission is not required (e.g. due to permitted development rights, or in building refurbishments, office fit outs etc.).

Tackling climate change and reducing carbon emissions is a high priority for the council and the ESPD will set out ways to ensure that developments are environmentally sound, fit for the

future and atmospheric pollution and emissions are significantly reduced. Westminster City Council is ambitious in this area of work and the ESPD will be built upon as further advances in environmental policy and innovation are made.

The ESPD covers seven environmental topics as described below:

1.1.1 Air Quality

Westminster was the first local authority in the United Kingdom to recognise air quality as a serious issue and develop an air quality plan in 1999. Today, with the health impacts better-known, air quality is one of the top concerns amongst residents. Positioned at the heart of a global capital, our city suffers from some of the worst pollution in the country. With over a million people moving into and travelling around our neighbourhoods each day, it is crucial that we make more strides to clean up our air and tackle poor air quality for residents and visitors alike. The council will have published its latest Air Quality Action Plan 2025 – 2029 by April 2025, with the new commitment to meet World Health Organisation guideline levels of pollution by 2040[1]. The Air Quality Action Plan will show the council's dedication to tackling air pollution by setting out to find new ways of reducing pollution and identifying clear steps to improve air quality. The ESPD builds upon the ambitions of these documents and the City Plan by providing further planning-related guidance and standards to improve air quality in the city. This chapter supports City Plan policy 32 on Air Quality.

1.1.2 Local Environmental Impacts

Westminster is a vibrant area with a wide variety of day and night activities; in the wrong locations or at the wrong time however, these activities can be detrimental. We aim to maintain high standards of life in the city and protect health and well-being, particularly of vulnerable groups. We therefore seek to manage impacts that negatively affect the local environment, using the 'agent of change' principle. Detrimental effects on the surrounding local environment covered in this section of the SPD include light pollution, noise, vibration, odour, land contamination and the impacts of construction and demolition. The guidance within this document illustrates how to carefully consider and manage development to ensure that the effects of certain land use activities are occurring at acceptable levels. This chapter supports City Plan policy 33 on Local Environmental Impacts.

1.1.3 Greening & Biodiversity

Green infrastructure includes open space, waterways, trees, green roofs and walls, rain gardens and other green features which contribute to biodiversity and access to nature. All developments are required to contribute to the further greening of the city and secure net gains for biodiversity. The Royal Parks are a huge asset, and they cover 19% of the city, however, there is still an open space deficiency in Westminster that means that not every resident has good access to public open space. As set out in the City Plan, we want every resident to be within a five-minute walk of an open space, so they have the benefits of a healthier life on their doorstep. Our recently published Green Infrastructure Audit (2024) and Greening and Biodiversity Strategy (2024) outline the council's commitment to improving green spaces and biodiversity through the city, in response to the council declaring an

[1] WHO Global Air Quality Guidelines 2021

ecological emergency in September 2023 and to comply with the Biodiversity Duty as set out in the Environment Act (2021). The ESPD will help support the ambitions of this strategy by strengthening its sections on greening and biodiversity and look at other co-benefits, including options for reducing climate and heat risk through nature-based solutions, as well as emphasising the impact that urban greening and greenspace makes to climate resilience. Opportunities for enhancing the benefits of existing spaces at ground, vertical and roof level will also be optimised. This chapter supports City Plan policy 34 on Green Infrastructure.

1.1.4 Flood Risk

Westminster is a Lead Local Flood Authority and has a strategic role in overseeing the management of local flood risks in the city. These risks include flooding from surface water, ground water and smaller watercourses. Due to the heavily urbanised nature of Westminster, and the predominantly Victorian drainage infrastructure, there is a widespread risk of surface water flooding. This SPD provides guidance on requirements for Flood Risk Assessments (FRAs) and how to manage the effects and impacts of flooding. This chapter supports City Plan policy 35 on Flood Risk and the guidance is based on the evidence from the Strategic Flood Risk Assessment (SFRA)(2023).

1.1.5 Energy

The energy used to heat and power buildings accounts for around 86% of all scope 1 and 2 carbon emissions in Westminster, so improving energy efficiency, decarbonising heat and increasing renewable electricity generation are all key to achieving a net zero city by 2040. The reduction of carbon dioxide and other greenhouse gas emissions to the atmosphere is the central pillar in the council's Climate Emergency declaration. The net zero targets (2030 for council activity and 2040 for the city) will ensure that we play our part in tackling the climate emergency.

The planning system is a key lever for carbon reduction in new, refurbished and retrofitted buildings. The council has a new focused approach to carbon reduction which is reflected in this SPD and uses the findings of Westminster' Local Area Energy Plan as supporting evidence. This chapter supports City Plan policy 36 on Energy.

1.1.6 Waste Management

As we move to a resource-efficient Westminster, we will be looking for more opportunities to implement the waste hierarchy and move from a linear to a circular economy. The council expects development to contribute to this by ensuring that opportunities for refurbishment are considered before demolition occurs, 95% of construction and demolition waste is reused, recycled or recovered, and sufficient space is provided for the separate storage of dry recycling, food waste and residual waste in residential and commercial buildings. This chapter supports City Plan policy 37 on Waste Management.

1.1.7 Sustainable Design

Policies 36, 37, and 38 of Westminster's City Plan 2019-2040 establish a cohesive framework for sustainable design, emphasising energy efficiency, resource conservation, and environmental resilience. They require developments to reduce carbon emissions through

energy-efficient designs, re-use of existing materials, integrate renewable technologies, and retrofit existing buildings to improve performance. The policies also prioritise high-quality, inclusive design that enhances local distinctiveness, promotes health and well-being, and ensures adaptability to future needs. Collectively, they aim to deliver sustainable growth by minimising waste, optimising resource use, and creating resilient, environmentally responsible developments.

1.1.8 Retrofit

Refurbishment and retrofit projects provide an excellent opportunity to improve the energy and water efficiency of existing buildings and reduce emissions, which is key to achieving carbon neutrality by 2040. A large proportion of the building stock in Westminster has a heritage designation, so finding sensitive and effective ways to improve energy efficiency of historic buildings is of vital importance. Given the extent of its heritage assets, Westminster is uniquely placed to lead in work on the area of sensitively retrofitting historic buildings and this will be a priority in order to tackle climate change. This SPD will promote the most effective retrofit solutions, which will optimise energy efficiency and give guidance on which solutions are appropriate depending on the heritage asset. This chapter supports City Plan policies 36 on Energy, 38 on Design Principles and 39 on Westminster's Heritage. The guidance set out in this chapter seeks to ensure that existing buildings are upgraded to be durable, adaptable and to maximise resource efficiency. This cuts across all the topics in this SPD and guidance on designing for sustainability is therefore integrated throughout each chapter.

1.2 Objectives

1.2.1 City Plan 2019 - 2040

The objectives of this document align with the environmental objectives of the City Plan 2019 – 2040. The SPD will particularly contribute to the delivery of the City Plan objectives that seek to:

- Improve quality of life, climate resilience and tackle environmental challenges by protecting, enhancing, expanding our valuable network of parks and open spaces; and
- Improve air quality, minimise noise and other polluting impacts, and reduce carbon and water demands by minimising detrimental impacts from development.

1.2.2 Fairer Westminster 2022

The ESPD's objectives also contribute to the delivery of the council's Fairer Westminster corporate strategy. The strategy aims to put residents at the heart of decision-making, helping to determine the city's future. The strategy sets out five key themes in the council's ambition to make a fairer Westminster; Fairer Communities, Fairer Economy, Fairer Housing, Fairer Council and Fairer Environment.

Fairer Environment sets out ambitions for a healthier and greener city, committed to tackling the climate and ecological emergency, aiming for a net zero council by 2030 and a net zero city by 2040, ahead of the national target of 2050. The Fairer Environment strategy pillar contains a commitment for a more sustainable city.

1.2.3 Climate Emergency Action Plan 2021

Our Climate Emergency Action Plan focuses on five priorities: efficient buildings, clean and affordable energy, reduced consumption and waste, promoting active and sustainable travel, green and resilient city. This Supplementary Planning Document is one of this plan's components, and provides guidance on creating a healthy environment for everyone, tackling climate change and shaping the resilient city. By taking measures to lower our environmental footprint, we give people in our city the highest quality of life.

1.3 How to use this document

This SPD is primarily for the use of applicants, council officers and developers. The document will be subject to monitoring and periodic review to ensure changes to its underpinning evidence can be incorporated into future iterations of the document. This will ensure it is kept relevant, up to date and will strengthen its power to influence development.

Each chapter within the SPD covers a different topic and each topic contains the following sections within it for your information.

1.3.1 Policy Overview

The key national, regional and local policies are set out at the beginning of each chapter that need to be referred to when assembling a planning application.

1.3.2 Introduction and Guidance

Each chapter will provide background information and context to the topic, this will outline the considerations that may need to be thought about when implementing environmental aspects into a development.

1.3.3 Development Requirements

Policies are cross-referenced throughout, however there are interrelated issues across the chapters which should be considered alongside each other. Applicants should refer to the council's Planning Validation Requirements checklist to ensure the correct supporting information is submitted for the type of development proposed.

Applicants are encouraged to contact the council for pre-application advice. In addition to advice from planning officers on how the council's planning policies will be applied to the proposal, pre-application discussions can identify the need for specialist input at an early stage.

1.3.4 Monitoring

City Plan policies are monitored through the Authority Monitoring Report. Key Performance Indicators (KPI) are set out in the Implementation and Monitoring section of the City Plan and relevant KPIs are highlighted at the end of each chapter of the ESPD.

2 Air Quality

2.1 Policy Overview

- National

NPPF Chapter 14 - Meeting the challenge of climate change, flooding and coastal change

NPPF Chapter 15 - Conserving and enhancing the natural environment

Planning Practice Guidance Air Quality (2021)

DEFRA Clean Air Strategy (2019)

- Regional

London Plan Policy SI 1 Improving air quality

London Plan Policy D13 Agent of Change

Air Quality Neutral London Plan Guidance

Air Quality Positive London Plan Guidance

Non-Road Mobile Machinery (NRMM)

- Local

City Plan Policy 32 Air Quality.

City Plan Policy 29 Freight and servicing

Air Quality Action Plan

Freight, Servicing and Deliveries Strategy and Action Plan

Code of Construction Practice

Westminster Guidelines for Kitchen Extract Ventilation Systems (2021)

2.2 Introduction and Guidance

2.2.1 Background

Westminster City Council is dedicated to ensuring clean, breathable air across the city, aligning with our vision of a Fairer Westminster. As one of the city's top environmental concerns, air pollution affects the health and wellbeing of our residents, as well as Westminster's natural and built environment. Addressing these impacts requires a multi-faceted approach, with the council taking active steps to reduce pollution and aiming to achieve World Health Organisations air quality guideline levels by 2040. Policy SI 1 Improving Air Quality of the London Plan provides the most up-to-date policy requirements with regard to air quality.

Our emerging Air Quality Action Plan for 2025-2030 will employ an evidence-based approach to tackling pollution locally and to reduce the impact of pollution that already exists, integrating Policy 32 of the City Plan. This policy requires certain developments to adopt an 'Air Quality Neutral' or 'Air Quality Positive' approach, and mandates air quality assessments to ensure improvements without transferring pollution to other areas. In addition, the Healthy Streets approach supports the development of infrastructure that benefits public health while reducing pollution. The council's proactive planning and policies reflect our commitment to a healthier, more sustainable future for our residents.

Air pollutants (including NOx, and Particulate Matter and Ozone amongst others) have both natural and human-caused sources. When they are released into the atmosphere, they undergo a range of chemical reactions that can has a detrimental impact on both public health, nature and the built environment.

Road transport has traditionally been the largest source of pollution in Westminster, but emissions from commercial buildings are now predicted to account in 2025 for a larger share of approximately 67% NOx, 40% PM10 (commercial heat and power & commercial cooking) and 70% PM2.5 (commercial heat and power & commercial cooking). Based on the current trajectory, for PM10, construction/ demolition dust could account for 28% in 2025, reducing marginally to 26% by 2040. There is a need for developing effective strategies to address this issue.

Road transport remains the second-largest source of pollutants with where it is predicted that in 2025 road transport will account for approximately 20% of NOx emissions, 16% PM10 Emissions and 14% of PM2.5 emissions. Whilst NOx emissions are expected to decline over time, particulate matter continues to be a persistent issue.

While many policy interventions targeting vehicle-related pollution fall outside the scope of this ESPD and the planning system, the City Plan supports clean air goals through policies such as Policy 32 (Air Quality), Policy 24 (Sustainable Transport), Policy 25 (Walking and Cycling), Policy 26 (Public Transport Infrastructure), Policy 27 (Parking), Policy 29 (Freight and Servicing), and Policy 30 (Technological Innovation in Transport). Westminster's Freight, Servicing and Deliveries Strategy, Air Quality Action Plan, Electric Vehicle Charging Infrastructure Strategy, and Code of Construction Practice also contribute to these goals. Measures like the diesel parking surcharge and regional interventions such as the Ultra Low Emission Zone (ULEZ) have already helped improve air quality.

Westminster's current Air Quality Action Plan (up to 2024) and the forthcoming 2025-2029 plan, alongside the broader Sustainable Transport Strategy currently in development (as of late 2024), will outline the council's ongoing efforts to reduce transport emissions.

Industrial and commercial activities have become the primary source of pollution in Westminster. These activities include the burning of fossil fuels for heating and power in industrial and commercial buildings, as

well as emissions from non-road mobile machinery, such as construction equipment and diesel back-up generators. These sources emit pollutants like nitrogen oxides (NOx) and particulate matter (PM). Another significant contributor to pollution is commercial cooking, where restaurants and commercial kitchens, particularly those using gas equipment, release pollutants like PM2.5.

The City Plan's Energy and Retrofitting sections, along with this ESPD, outline strategies to address these emissions. These strategies involve designing and retrofitting buildings to reduce carbon and methane emissions (another potent greenhouse gas), improve energy efficiency, and increase the use of renewable energy. Key interventions include aiming to electrify buildings, transition to electric cooking equipment, and connect buildings to low-carbon decentralised energy networks. Additionally, the City Plan includes a net-zero carbon target for major developments, ensuring that new buildings contribute to cleaner air and reduced greenhouse gas emissions.

Emissions from demolition and construction work are also key sources of particulate matter and can cause highly localised spikes in pollution. Where all or part of the existing building can be retained and demolition can be avoided, this will avoid dust and emissions from demolition as well as help conserve resources, reduce upfront embodied carbon emissions and minimise waste. Further information on Sustainable Design Principles and the council's preference to consider retaining buildings first before proceeding with plans for demolition are set out within the ESPD sections on Sustainable Design and Retrofit.

Westminster requires Whole Life Carbon (WLC) Assessments for applications referable to the Mayor of London and major developments[2] involving substantial demolition[3]. The approach to undertaking a WLC assessment should follow the latest RICS Professional Standard on Whole Life Carbon Assessment, 2nd edition. The approach to considering whether a building should be retained and retrofitted, or demolished and re-built should follow the considerations set out in Section 10.3 of this document which incorporate the London Plan Guidance on Whole Life Carbon Assessments and Circular Economy Statements. In following this approach, Westminster requires applicants to consider the retrofit or reuse of any existing built structures before embarking on the design of a new structure or building. See the ESPD section on Sustainable Design for more details.

Where demolition does take place, City Plan Policy 33 relating to Local Environmental Impacts, and the council's Code of Construction Practice, requires developers to provide mitigation measures for dust and air pollution during the demolition and construction process. The chapter in this ESPD on Local Environmental Impacts provides further details.

Green Infrastructure can play a part in the improvement of air quality, please see the Green Infrastructure chapter for further guidance.

The behaviour of our communities also has an impact on pollution levels and behaviour change will play a key part in tackling the issue. Further information of what residents, visitors and businesses can do to help and also to reduce their own personal exposure can be found in the supporting guidance associated with the Air Quality Action Plan.

[2] Development of 150 residential units or more and/or development over 30 metres in height referable to the Mayor. Major development is greater than or equal to 10 residential units; or 0.5 hectares site area (residential) or 1 hectare (non-residential); or gross floorspace of 1,000 sq m (GIA).

[3] Substantial demolition is defined as being the demolition of more than 50% of the floor slabs and substructure of any pre-existing building.

It is important to note that although carbon dioxide and methane are not considered to be air pollutants, they are greenhouse gases. There are distinct synergies between carbon emissions reduction and air quality improvements, and actions to realise these co-benefits will be expected as part of development proposals.

2.2.2 Key Considerations

AIR QUALITY NEUTRAL

The London Plan Policy SI1B2a postulates that all development proposals must be at least Air Quality Neutral. It sets out minimum requirements for developments in the form of emissions benchmarks that must be met and technical requirements for the installation or operation of some types of combustion equipment. Detailed technical requirements for Air Quality Neutral, including how to undertake the benchmarking calculation, are set out in London Plan Guidance published by the GLA. Developers are required to follow this guidance for applications in Westminster.

Developments that do not include additional emissions sources are assumed to be Air Quality Neutral and to meet the Air Quality Neutral benchmarks without performing the calculation. In these cases, applicants should set out clearly in the Planning Statement or covering letter why they are excluded from Air Quality Neutral, including references to the relevant plans or design documents. As set out in the London Plan Guidance, phased developments may need to revisit the Air Quality Neutral calculation as detailed applications are brought forward for each phase.

AIR QUALITY POSITIVE

Air Quality Positive should be applied to masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment. In this context, 'large scale development' refers to planning applications that are referable to the Mayor under the following categories of The Town and Country Planning (Mayor of London) Order 2008:

- Category 1A
- Category 1B
- Category 2C(1)(a)-(f)
- Category 2C(2)
- Category 2C(3)
- Category 2D

The Air Quality Positive approach should inform a project from the concept stage, before detailed plans are developed. Pre-application engagement is strongly recommended. The scheme's Air Quality Positive statement should set out matters which may be secured by planning condition or legal agreement, and issues or constraints for subordinate developments.

COMMERCIAL COOKING

Enhancing existing kitchen ventilation systems, upgrading filtration and ensuring regular maintenance can effectively capture pollutants such as PM2.5, nitrogen dioxide (NO2), and volatile organic compounds (VOCs). This approach complements the use of induction cooking and ESP systems, offering a quicker and more cost-effective solution.

Induction Cooking: Transitioning commercial kitchens to electric, ideally induction cooking is a key climate and air pollution friendly solution. Induction hobs offer a cleaner and more energy-efficient alternative to

gas-powered stoves. This method reduces indoor air pollution by eliminating the combustion of fossil fuels, thus lowering emissions of nitrogen oxides (NOx), carbon dioxide (CO2), and methane. Additionally, induction cooking is highly energy-efficient, using up to 95% of energy compared to just 50% with gas.

Electrostatic Precipitator (ESP) Filtration Systems: ESP systems are designed to improve air quality by targeting the removal of fine particles (PM2.5), grease, smoke, and other pollutants produced during commercial cooking. Using an electrostatic charge to capture particles in the airstream, ESPs can remove up to 98% of pollutants from kitchen exhausts. While they offer a less invasive solution than transitioning to induction cooking, they still involve operational disruption, as the kitchen's extraction system must be designed to accommodate an ESP. This includes adjustments to fan speeds to achieve the required air changes and addressing potential space constraints, particularly in smaller kitchens typical of Westminster. Although ESP systems require a significant upfront investment, they tend to be more cost-effective over the long term due to lower maintenance requirements.

Applications are expected to refer to Westminster's guidance relating to 'Prevention of odour and fume nuisance from commercial kitchen exhaust systems'.

2.3 Development Requirements

2.3.1 Information

AIR QUALITY ASSESSMENT:

Air Quality Assessments are required for all developments in Westminster that meet the following criteria:

- Major developments[4];
- Proposals that include potentially air pollution generating uses or combustion-based technologies;
- Proposals incorporating sensitive uses[5]; and
- All residential developments within Air Quality Focus Areas.

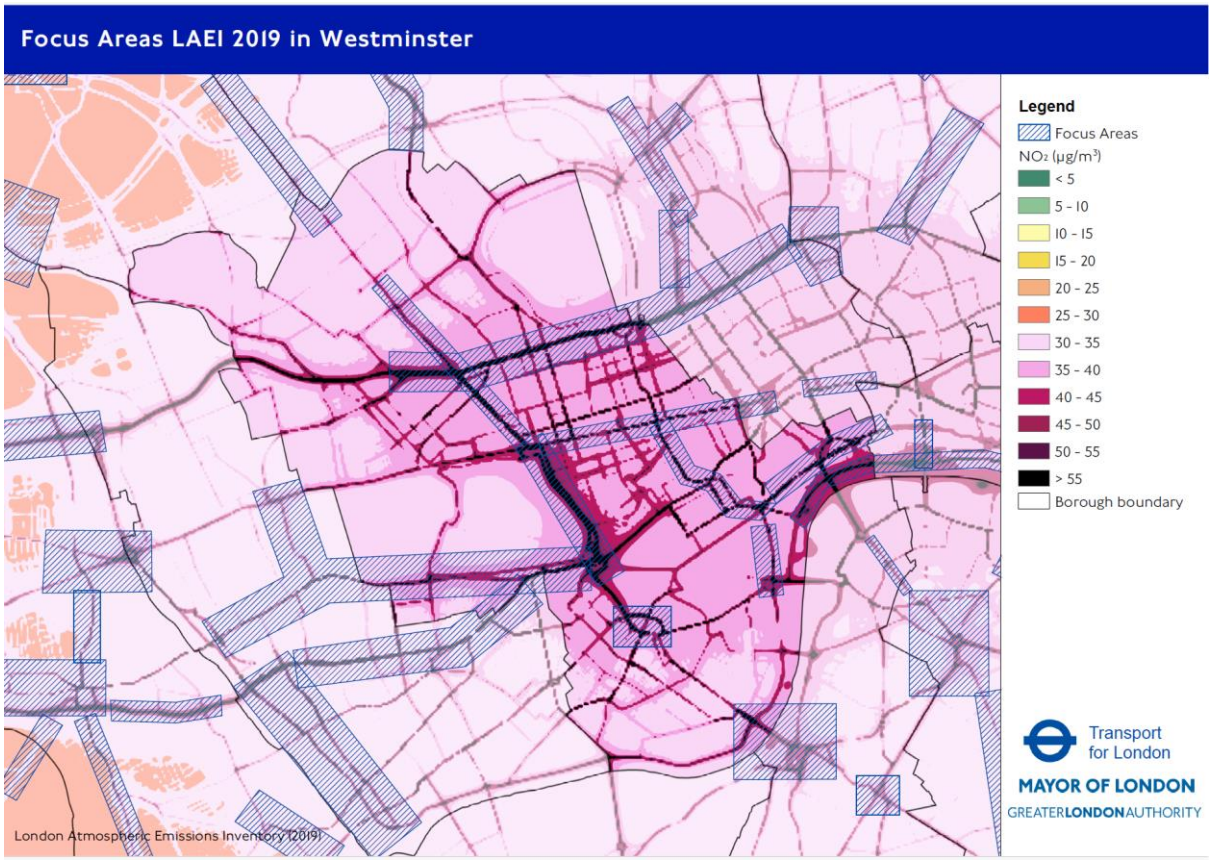


Figure 1 - Air Quality Focus Areas in Westminster

The purpose of an Air Quality Assessment is to understand, and where possible, assist the developer in avoiding detrimental local impacts of air pollution arising from a development. It is not permitted to assume that a development will have no local impacts just because it has met the Air Quality Neutral benchmarks.

[4] In accordance with the City Plan, development greater than or equal to: 10 residential units; or 0.5 hectares site area (residential) or 1 hectare (non-residential); or gross floorspace of 1,000 sq m (GIA).

[5] Sensitive uses include many types of social and community infrastructure, including schools, hospitals and nursery facilities, as well as types of specialist housing such as elderly housing and care homes.

In addition to the technical requirements set out below applicants are required to show how their proposals are consistent with relevant policies in the Westminster Air Quality Action Plan. Table 1 below outlines the expected content of Air Quality Assessments submitted as part of a planning application.

Table 1 Content of air quality assessments

Category	Notes
Introduction and Description of Development	• Ensure consistency with submitted application description.
Authors name and qualifications. Date of assessment	• Recent date / Appropriate level of competency of report author.
Maps / Plans included	• Note whether development is within an AQFA.
Photo of site and surroundings	• Should include any features of significance, such as local sources of pollution, existing receptors or other key constraints.
Relevant guidance / Standards referenced	• E.g. EPUK guidance; London Councils guidance.
For the operational assessment	
Evidenced statement on why a detailed AQ assessment required	• Reference should be made to the criteria listed above. • This evidence should also inform the scope of the assessment.
Baseline assessment	• Relevant data used from appropriate monitoring stations, diffusion tubes / Defra background maps, LAEI • The choice of data sources used, and appropriate baseline year should be justified. • Where short term diffusion tube campaigns are used to support the baseline assessment annualization calculations must be shown to be in accordance with DEFRA guidance TG(22).
Modelling methodology	• Inputs to be appropriate to the development under consideration. • Transport, building and energy centre emissions from the new development should be cross referenced to the relevant plans and documents in the application. Any assumptions or scaling factors should be described and justified. • Building emissions for industrial or commercial uses should include emissions from the use, e.g. commercial cooking.

	• Emissions data for existing sources should be as robust as possible and any assumptions made described and justified. • Emissions factors and parameters should be supported by reference to technical data sheets or published tools (such as the DEFRA Emissions Factor Toolkit). • Technical modelling parameters (such as surface roughness or Monin-Obukhov Length) should normally be the defaults for large urban centres. Any deviations should be justified. • The source for background concentrations and meteorological data should be clearly stated.
Receptors evaluated	• Chosen specified receptor location, both within the development and in the surrounding should be chosen to be representative of the most affected locations and the most sensitive users. • An assessment should be made of how many people or properties each specified receptor is representative of. • In addition, isopleth maps should be prepared showing the overall distribution of pollution in and around the development.
Pollutants assessed	• Appropriate to the pollutant source e.g. NO_2 and PM for most road traffic and building emission assessments. Additional pollutants may need to be considered for some industrial and commercial uses.
Model verification	• Any model verification must be undertaken in accordance with the procedures set out in DEFRA's technical guidance TG (22). • Steps taken to improve the model to reduce the verification factor should be set out and any remaining disparities explained.
For construction assessment	
Construction traffic inclusion	• Reference should be made to the Westminster Code of Construction Practice, section 5.7 of this guidance and relevant guidance from the GLA.
Dust risk assessment	
Significance criteria	
Mitigation	
Interpretation	

Conclusion	• The conclusion should set out the expected impacts and concentrations post completion. • Any design features or parameters which are critical to achieving the predicted impacts should be clearly laid out so that they can be secured by condition or other agreement. • Professional judgement on the acceptability of the impacts remains with the planning authority.

Where required or appropriate, planning conditions will be used to ensure that the final development is built in accordance with the parameters used in the Air Quality Assessment.

AIR QUALITY NEUTRAL

A reassessment of compliance with the Air Quality Neutral will normally be required as part of any application for amendments to a planning consent that affects any of the following:

- energy strategy
- the proposed type or number of power and/or heating appliances
- transport strategy and/or travel plan
- number of parking spaces
- parking management plan
- number of residential units
- floorspace assigned to non-residential use classes.

The reassessment should be proportionate and limited to the extent of the amendments. For example, a change to the number of car parking spaces would not need a reassessment of building emissions.

A change that would unambiguously reduce emissions, such as replacing planned domestic boilers with heat pumps, or removing car parking may be allowed on that basis without reassessment at the discretion of the local planning authority.

Where required or appropriate, planning conditions will be used to ensure that the final development is built in accordance with the parameters used to inform the Air Quality Neutral calculation.

Developments that are unable to meet the Air Quality Neutral benchmarks should seek to agree appropriate mitigation measures, which may be secured by legal agreement. If appropriate mitigation measures cannot be identified, Westminster will secure off-setting payments through legal agreements, in line with the GLA guidance.

AIR QUALITY POSITIVE

An Air Quality Positive Statement should be submitted as part of the Environment Impact Aassesment (EIA) and updated as appropriate for reserved matters applications, outlining the Air Quality Positive approach taken. Where the proposal meets the above criteria for a large-scale development subject to an EIA, but does not have a masterplan or development brief, an Air Quality Positive Statement is still required.

Detailed technical requirements for Air Quality Positive, including how to prepare a compliant Air Quality Positive Statement, are set out in London Plan Guidance published by the GLA. Developers are required to follow this guidance for applications in Westminster.

Applicants are reminded that, in order to produce a compliant Air Quality Positive Statement, initial phases of the work on air quality should be commenced before any designs are finalised. Applicants are strongly recommended to discuss Air Quality Positive at the pre-application stage.

Applications that meet the threshold for Air Quality Positive but are not accompanied by a compliant statement may be refused.

Among the minimum requirements for an Air Quality Positive Statements, it is expected that:

- there is a realistic mechanism to ensure the proposed measures will be secured, and
- there is a suitable implementation and monitoring plan for longer-term targets.

Planning conditions or Section 106 agreements may be used, where appropriate, to secure measures or ongoing monitoring.

Where proposed monitoring includes ambient air quality monitoring the applicant is referred to Westminster's Air Quality Action Plan for further guidance.

2.3.2 Standards

Policy SI 1 Improving Air Quality of the London Plan sets out a requirement that all development proposals must be at least Air Quality Neutral. Development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people should demonstrate that design measures have been used to minimise exposure.

2.4 Monitoring

City Plan Key Performance Indicator 21: Reduction of NOx and particulate matter (PM2.5 and PM10) concentration against national and regional Air Quality targets and WHO guideline level.

3 Local Environmental Impacts

3.1 Policy Overview

- National

NPPF Chapter 11- Making effective use of land

NPPF Chapter 12- Achieving well-designed places

NPPF Chapter 14- Meeting the challenge of climate change, flooding and coastal change

NPPF Chapter 15- Conserving and enhancing the natural environment

Public Health England UK National Radon Action Plan

- Regional

London Plan Policy D8 Public realm

London Plan Policy D13 Agent of Change

London Plan Policy D14 Noise

- Local

City Plan Policy 33 local environmental impacts

City Plan Policy 16 food, drink and entertainment

Code of Construction Practice

Westminster's Contaminated Land Guidance

Planning and Pollution Control – Prevention of odour, smoke and fume nuisance from commercial kitchen exhaust systems guidance (March 2021 – or any subsequent update)

– WCC Lighting Design Guide (May 2020)

– Westminster Lighting Master Plan 2020 – 2040 (July 2020)

3.2 Introduction

Westminster is a vibrant city with a wide variety of day and night activities. Detrimental effects on the surrounding local environment can occur in relation to light pollution, noise, vibration and odour. These effects have to be carefully considered and managed to ensure that certain land use activities are occurring at acceptable levels.

We apply the agent of change principle to manage impacts. It requires that the mitigation for environmental impacts is placed on the proposed new development and does not require surrounding uses to curtail their activities due to the proposed development. The chapter covers the following impacts associated with a completed development: Light Pollution (5.3), Noise & Vibrations (5.4), Odour (5.5); and considerations associated with time of construction: Land Contamination (5.6) and Construction Impacts (5.7)

Developments falling within Use Class E should provide appropriate mitigation for all types of development within this use class. Changes between uses within Class E may be restricted in certain circumstances where demonstrable harm would be caused contrary to development plan policies. Where harm would occur as a result of an unrestricted Class E use being granted, the council will use conditions to mitigate this, which will be considered on a case-by-case basis.

This ESPD should be read in conjunction with the Code of Construction Practice which deals with impacts resulting from the construction phase of development. This includes liaising with the public, general site operations, traffic, transport and the use of the public highway, noise and vibration, dust and air pollution, waste management, water pollution and flood risk, ecology, heritage assets and protection of existing installations.

As a principle, the agent of change approach should be applied. Harmful environmental impacts should be designed out at an early stage, avoiding the need for retrofitted mitigation measures. The impact assessments required at the planning application stage are tests of the success of the design, ideally forming part of an iterative process whereby post-design mitigation is avoided as far as possible.

3.3 Light Pollution

City Plan policy 33B, requires development to be designed to minimise the detrimental impact of glare and light spill on local amenity, biodiversity, highway and waterway users.

Artificial lighting is used in the evenings and at night to illuminate our city for a wide range of reasons, including:

- Safety – when travelling during the evening and at night, pavements, cycle lanes and roads need to be appropriately lit to be safe and accessible to all;
- Activity – from sports pitches to restaurants and buildings, lighting helps to extend the number of hours in which an activity can be enjoyed; and
- Celebration – parts of the city are illuminated seasonally to celebrate Christmas, Diwali and other festivities.

Excessive and poorly designed lighting can pollute the night sky and waterways, disrupting biodiversity and illuminating residential areas and buildings inappropriately, changing the character of the area and wasting energy. Domestic lighting accounts for almost 50% of environmental complaints received by the council.

The Institution of Lighting Professionals (ILP) sets out current best practice[6] to reduce light pollution and to provide the right light, at the right time, in the right place, controlled by the right system. Based on this, we have divided the city into three lighting zones.

Table 2 Lighting Zones in the City of Westminster

Area Covered	Standard
Within the Central Activities Zone except for the Royal Parks and The Thames	ILE Zone 4 Standard
Outside the Central Activities Zones except for the Royal Parks and the Thames	ILE Zone 3 Standard
Within the Royal Parks, canals and the Thames, including the embankment	ILE Zone 2 Standard

The Royal Parks, canals and the Thames, including the embankment, have the lowest level of illumination to protect biodiversity. This is commensurate with their priority habitat designation as Sites of Importance for Nature Conservation (SINCs). SINCs provide important habitats for a range of species and make it possible for residents and visitors to access nature. Light pollution can disrupt the flight paths of bats, disorientate night-flying insects and birds, and affect the ability of wildlife to breed or feed successfully. Developers are required to undertake a site-specific ecology report for any development including artificial light which would impact on a priority species or habitat.

[6] Guidance Note 01/21: The Reduction of Obtrusive Light

The highest level of illumination is within the Central Activities Zone (CAZ) where the commercial and cultural offer is highest. This area also has a large resident community and disruption to their evenings must be minimised.

The environmental impact of lighting, both internally and externally, must also be considered. It should not prevent appropriate levels of illumination for safety, navigation and accessibility. Westminster's street lighting uses LED light sources which use less energy than incandescent, halogen and compact fluorescent lamps. We have a central management system which ensures that the right level of lighting is provided at the time that it is needed and in the right location. The lighting levels we achieve from these measures seek to act as helpful context for development.

3.3.1 Key Considerations

External lighting should be designed in a way limiting the impacts on the environment. It should:

- Be in line with the ILP Zone Standards;
- Be designed to minimise glare and light spill, and to avoid conflict with traffic lighting, road and/or river users;
- Take into account priority habitat designations;
- Use illumination levels that are no more than required for the purpose;
- Be energy efficient;
- Be visually unobtrusive, using discrete fittings and cabling; and
- Be appropriate to the character of the area in design and intensity.

Well designed and downward facing light fittings can reduce wasted light and help to prevent pollution of the night sky.

DEVELOPMENT REQUIREMENTS

Types of lighting installations that are subject to planning:

- Lighting for listed buildings- very tightly controlled, particularly in relation to changes to the building fabric;
- Lighting that changes the material appearance of a building;
- Lighting for new developments (inc. sports grounds and new lighting installations); and
- Illuminated Advertising Signage.

3.3.2 Information

Westminster's Lighting Design Guide and Lighting Master Plan documents should be consulted for definitive application requirements. Where planning permission for lighting schemes is required, applicants should provide the following details as applicable:

- The purpose of the lighting;
- The design of light infrastructure, e.g. height of light columns;
- Plans showing the lit area and the layout of lights and orientation of light beams;
- The number of lights, lighting levels, lux and lumen details, lamp types; and
- Times lighting will be on and the control systems (types and location of sensors).

3.3.3 Standards

All external lighting (excluding floodlighting) will meet the criteria of the Institution of Lighting Professionals' (ILP) Guidance Notes for the Reduction of Obtrusive Light GN01/21, or more recent version as appropriate for the relevant ILP Zone in which the development is proposed, as set out in Table 2 above.

Floodlighting, architectural lighting and schemes which require the deliberate use of upward light will minimise upward waste light by application of appropriate directional luminaires and light controlling attachments.

External light spill and glare from internal lighting will be minimised, energy efficient, and subject to curfew hours when internal lighting will be substantially reduced or switched off.

Applications for physical activity, leisure, sport and/or play facilities should follow Sport England's Artificial Lighting Guidance.

3.4 Noise and Vibration

Part C of City Plan policy 33, Noise and Vibration is relevant for the next two SPD topics. The City Plan seeks to prevent adverse effects of noise and vibration and improve the noise environment in compliance with the council's Noise Thresholds. Noise thresholds are outlined below in development requirements.

3.4.1 Key Considerations

Westminster is a noisy city within a global city. The intensity of road traffic, commercial trade, business and residential noise impacts are experienced twenty-four hours a day. Ambient noise levels in the city exceed those of the rest of the UK and World Health Organisation guidelines. As a result of the proximity of a wide range of uses to each other, more than 20,000 noise complaints are received annually, including issues related air conditioning/plant noise, building sites, deliveries and collections, noise from licensed premises and traffic noise.

The impact of continuous unwanted sounds can be detrimental to both residents by disturbing sleep and wider quality of life impacts as well as to sensitive biodiversity systems. Therefore, acoustic design in the built environment is a key environmental consideration. In Westminster residential areas are mixed with commercial areas and our expansive road network means that only a few properties are a significant distance from noisy activity such as freight, servicing and delivery. In addition to this ESPD, the Code of Construction Practice addresses noise from construction, and the Public Realm SPD and Freight, Servicing and Deliveries Strategy also seek to address noise issues from road users.

Despite the serious problems of noise pollution affecting the city, many of the open spaces within the city are relatively quiet and tranquil places. From the royal parks to a rich variety of smaller spaces, Westminster has open spaces that perform many functions. City Plan policy 33, C 4, recognises the importance of protecting the relative tranquillity in and around open spaces.

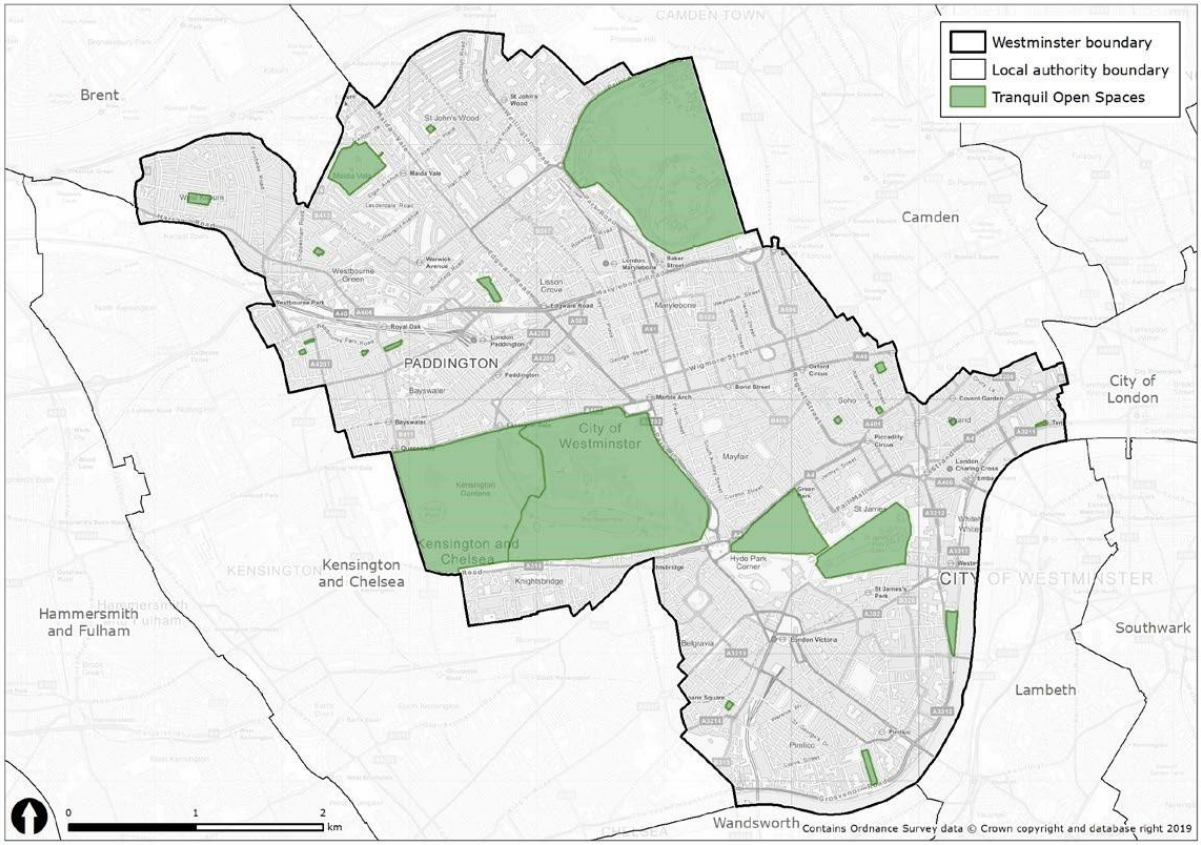


Figure 2 - Tranquil Open Spaces in Westminster

In considering the noise impacts of the built environment there are clear crossovers with Air Quality and Greening and Biodiversity sections of this document. For instance, green infrastructure, such as green walls and roofs, can serve as natural sound barriers while simultaneously improving air quality and providing habitats for urban biodiversity. Similarly, vegetation buffers, such as tree-lined streets or pocket parks, can reduce noise pollution, absorb particulate matter, and enhance ecological connectivity. The placement of buildings and landscaping can also influence wind patterns, which affect both noise dispersion and air quality in urban areas.

DEVELOPMENT REQUIREMENTS

3.4.2 Information

A Noise Impact Assessment (Acoustic Report) is required where development, including change of use, could affect noise sensitive receptors (as defined in the City Plan), or introduce a noise sensitive receptor into an area of existing high ambient noise.

Noise Impact Assessments should:

- Set out how any noise and vibration impacts will be mitigated;
- Highlight any noise and vibration generated by a development and how this affects existing external background noise levels;
- Identify where the nearest noise sensitive property is located, and what noise level from the development will occur outside the nearest noise sensitive window over a 24-hour period as a minimum;

- Demonstrate what measures will be taken to mitigate noise and vibration to meet the council's requirements; and
- Be carried out by a suitably qualified and experienced acoustic consultant (consultants must be registered members of the Institute of Acoustics (IOA) or Association of Noise Consultants (ANC)).

3.4.3 Standards

This section presents the Noise Thresholds for different types of developments, which are derived from BS8233:2014 and WHO Community Noise Guidelines.

NEW RESIDENTIAL DEVELOPMENT / CONVERSIONS

Standards are:

- Indoors 35 dB L_{Aeq}, 16 hours day-time (7am–11pm);
- Inside bedrooms 30 dB L_{Aeq}, 8 hours night-time (11pm–7am); and
- Inside bedrooms 45 dB L_{AFmax} to be exceeded no more than 15 times per night-time from sources other than emergency sirens.

NOISE SENSITIVE DEVELOPMENT IN PROXIMITY TO UNDERGROUND TRAIN LINES

Noise

Where development is likely to be affected by existing ground-borne noise from underground train operations, for instance resulting from basement development, there should be no increase in ground borne noise within neighbouring properties and the following standards should be met within new habitable spaces:

Indoors 35 dB L_{ASmax} minimum standard day and night.

Vibration

The design and structure of the development should protect future occupiers from any vibration arising from underground train operations in any part of a residential property and meet the following standards (as defined by BS 6472-1:2008):

0.2 VDV $m/s^{-1.75}$ day-time (7am–11pm)

0.1 VDV $m/s^{-1.75}$ night-time (11pm–7am)

NOISE GENERATING COMMERCIAL USES INCLUDING MUSIC AND ENTERTAINMENT USES (E.G. RESTAURANTS, CLUBS, PUBS) AND GYMS

Where noise generating commercial uses are proposed, either as part of new development, conversion or change of use, the standards in Table 3 apply. These noise standards also apply to proposals for extended operating hours or intensification of the existing use. Any additional plant or equipment required for the new use must also meet the criteria in Table 4.

The design and construction of the separating building structure should be such that any received noise in adjoining residential habitable spaces or other noise sensitive properties does not exceed the standards in Table 3 below.

Where existing residential units or other noise sensitive receptors could be affected the design of the development must ensure that there will be no increase of noise above existing levels. This factor must be considered in designs which include large areas of openable windows and/or fully openable shopfronts.

Table 3: Design Criteria to be achieved in adjoining residential habitable spaces.

Typical Use	Noise Criteria	Noise Parameter: (measured in 5 min increments)
Music and entertainment (e.g. restaurants, clubs, pubs)	• 10 dB below measured/assessed background in adjoining residential habitable space	L_{eq} & L_{Fmax} in 63 Hz and 125 Hz octave bands
	• Fixed criteria	Day: NR30 $L_{eq,}$ NR35 L_{Fmax} Night: NR25 $L_{eq,}$ NR30 L_{Fmax}
Gym facilities and other similar uses	• 10 dB below measured/assessed background in adjoining residential habitable spaces	L_{eq} & L_{Fmax} in 63 Hz and 125 Hz octave bands
	Fixed criteria[2]	Day: NR20 Leq (Airborne noise), NR25 LFmax (Impact noise) Night: NR15 Leq (Airborne noise), NR20 LFmax (Impact noise)

NOISE FROM PLANT MACHINERY AND INTERNAL/EXTERNAL ACTIVITIES

Development including plant or machinery, or proposed uses that cause noise from amplified/unamplified music or human voices both internally and externally, even when windows and doorways are open, should achieve the following standards:

Table 4: Noise and vibration criteria for plant machinery and internal/external activities.

Existing External Ambient Noise Level	Tonal or Intermittent Noise/Noise Source	Noise level that should not be exceeded at the nearest Noise sensitive Receptor*[7]

[7] Measured at the nearest noise sensitive receptor 1m from the most affected façade, relative to the existing external background noise level in this location and including assessment at the quietest time during which the plant operates or when there is internal activity at the development site. The background noise level should be expressed in terms of the lowest LA90,15min during day time or night time (depending on the hours of use being applied for).

Exceeds WHO Guideline levels L_{Aeq} 55 dB over periods of day-time (7am–11pm) and L_{Aeq} 45 dB at night-time (11pm–7am)	Does not contain tones or intermittent noise sufficient to attract attention	10 dB below the minimum external background noise level
	Contains tones or intermittent noise sufficient to attract attention	15 dB below the minimum external background noise level
	Noise emitted from emergency plant or an emergency life supporting generator	10 dB above the lowest background noise level within a 24-hour period.
Does not exceed WHO Guideline levels L_{Aeq} 55 dB over periods of daytime (7am–11pm) and L_{Aeq} 45 dB night-time (11pm–7am).	Does not contain tones or intermittent noise sufficient to attract attention	5 dB below the minimum external background noise level.
	Contains tones or intermittent noise sufficient to attract attention	10 dB below the minimum external background noise level
	Noise emitted from emergency plant or an emergency life supporting generator	10 dB above the lowest background noise level within a 24 hour period

The following tranquil areas shown in Table 5 below have specific protection from noise and should be considered noise sensitive.

TRANQUIL OPEN SPACES IN WESTMINSTER

Table 5: Tranquil Open Spaces in Westminster

Tranquil Open Spaces in Westminster	
1. Regent's Park	12. Violet Hill Gardens
2. Green Park	13. St Anne's Churchyard
3. St James's Park	14. Shrewsbury Road
4. Kensington Gardens	15. St Stephen's Gardens
5. Hyde Park	16. Paddington Recreation Ground
6. Westbourne Gardens	17. St Mary's Churchyard
7. Porchester Square	18. Temple Gardens

8. Golden Square	19. Inigo Jones Gardens
9. Soho Square	20. Victoria Tower Gardens
10. Ebury Square	21. Queens Park Gardens
11. St George's Square	22. Edbrooke Road Gardens

Tranquil open spaces are given specific protection from noise and should be considered noise sensitive.

For a development outside a tranquil space:

Where noise is emitted from the proposed development, the sound pressure level should not exceed the thresholds set out in Table 3 above at the closest edge of the nearest tranquil open space to the proposed development.

For a development within a tranquil open space:

Where noise is emitted from the proposed development, the sound pressure level should not exceed the thresholds set out in Table 3 at a distance of 5 metres from the proposed noise source.

Standards in Tables 3 and 4 apply at the quietest time of day or night (when the plant operates or when there is internal or external activity at the development) and to all open spaces that have been defined as Tranquil Open Spaces.

It is acknowledged that some developments will enhance the soundscape; in this case, the specified standards above may not need to be met. These developments may include children's play areas, sonic art installations and local amenities such as swimming pools and gyms.

3.5 Odour

City Plan Policy 33D, requires development to effectively address the adverse impact of odour through the incorporation of appropriate mitigation measures.

3.5.1 Key Considerations

Westminster has large numbers of existing hot food premises which discharge kitchen fumes externally at low level. This can have a significant impact on the amenity of adjoining uses and persons using the footway and can lead to complaints. The council has produced guidance to assist with addressing odour issues associated with hot food use operations. This is "Prevention of odour, smoke and fume nuisance from commercial kitchen exhaust systems," March 2021.

Other sources of odour in Westminster affecting amenity are normally from Shisha Smoking and waste storage and handling.

Policy 16F which relates to Shisha Smoking does not prohibit shisha smoking but requires applicants to demonstrate through the submission and implementation of a management plan how any potential negative health and odour impacts from shisha smoking can be mitigated. The lack of control within the licensing regime means that management of the impacts from shisha smoking need to be applied at the planning stage.

DEVELOPMENT REQUIREMENTS

3.5.2 Information

ODOUR ASSESSMENT

Proposals that could involve significant sources of odour will require an Odour Assessment.

An Odour Assessment should assess against the following FIDOL factors (Table 7) as advised by the Institute of Air Quality Management in their 'Guidance on the assessment of odour for planning' (July 2018).

Table 6: Description of the FIDOL factors (Institute of Air Quality Management)

Factor	Description
Frequency	• How often an individual is exposed to odour.
Intensity	• The individual's perception of the strength of the odour.
Duration	• The overall duration that individuals are exposed to an odour over time.
Odour unpleasantness	• Odour unpleasantness describes the character of an odour as it relates to the 'hedonic tone' (which may be pleasant, neutral or unpleasant) at a given odour concentration/intensity. This can be measured in the laboratory as the hedonic tone, and when measured by the standard method and expressed on a standard 9 point scale it is termed the hedonic score.

Location	• The type of land use and nature of human activities in the vicinity of an odour source. Tolerance and expectation of receptor. • The 'location' factor can be considered to encompass the receptor characteristics, receptor sensitivity, and socio-economic factors.

SHISHA SMOKING

A shisha smoking management plan is required to demonstrate how any potential negative health, safety and amenity impacts for local residents and staff/customers can be mitigated.

A Shisha smoking management plan should contain the following information:

- Smoking area shelter compliant with Health Act;
- Location of smoking area (i.e. it should not be below openable windows of upper floors who might be affected by smoke);
- Use of Smoke Control Area 'Authorised Fuels' to minimise impact on local air quality;
- Charcoal Burner Holder located away from where it could cause danger to general public; and
- Arrangements for the safe disposal of hot coal and ashes when finished.

3.5.3 Standards

HOT FOOD PREMISES

The following hierarchy should be applied for the prevention of odour nuisance from hot food premises (please refer to Prevention of odour, smoke and fume nuisance from commercial kitchen exhaust systems guidance (March 2021) for more information):

'FULL-HEIGHT' SCHEME

The incorporation of full height discharge systems in hot food premises is the most effective way to minimise the detrimental impact of odours and is the preferred option. It gives operators flexibility for a full range of food and cooking styles without the need to adapt ventilation systems. Technology plays an important part in commercial kitchens in both maximising energy efficiency and promoting a safer working environment.

'RECIRCULATION' SYSTEM

Some hot food facilities in Westminster will not be able to incorporate full height extract due to the practical constraints of the building which may include heritage considerations. In such cases the installation of a recirculation extract system without an external discharge may be supported by the council. However, this will only be considered where food is cooked and reheated by electricity only, it can be demonstrated that the recirculation system can adequately contain or neutralise odours and fumes, and an operational management plan has been submitted.

BESPOKE SCHEME

Where a full height or recirculation system cannot be implemented then a 'bespoke' odour reduction system will need to be installed. It must be designed to 'Best Practicable Means', BPM, (i.e. to current industry standards) for the food type proposed at the time of the application. A final assessment as to whether the bespoke scheme will prevent nuisance may have to be carried out after it has been installed and is operating at its most intense use conditions.

If mechanical ventilation is required to maintain a suitable ambient temperature in the kitchen, full details of any proposed external plant and equipment including a Noise Impact Assessment are required. An initial conversation with the council as part of the pre-application process is recommended to ensure that appropriate standards are met.

The whole of Westminster is an Air Quality Management Area (AQMA) under the Clean Air Acts and if there is any intention to employ solid fuel cooking (e.g. wood, charcoal, etc) then these must comply with smoke control area requirements. Emissions from fixed chimneys where solid fuel is used, for example in commercial kitchens, should only be from authorised fuels and/or exempt appliances. For exempt appliances and/or authorised fuels that can be used in such areas refer to gov.uk/smoke-control-area-rules

3.6 Land Contamination

Applicants are required to carry out contaminated land assessments and take appropriate remediation measures for development on or near a site which is potentially contaminated. The SPD provides details on assessing land contamination and remediation as required by City Plan policy 33E.

Westminster has a long commercial and industrial history. These activities can leave a legacy of contaminants and pollutants that have a detrimental impact not only on the environment but also on the health of our communities who reside in, work and visit the city. Contamination, in most cases, is likely to arise from a previous use of the site, or an adjacent site, that had an industrial activity on it. Site investigations for contamination will vary on a case-by-case basis depending 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 council can carry out an environmental search on the developer's behalf that includes historic maps and a formal letter describing the previous land uses of the site. Full details of the process and payment details can be found here.

3.6.1 Key Considerations

If remediation is required, appropriate measures might include one or more of the following,

- Reducing or treating the contaminant part of the linkage (e.g. by physically removing contaminants or contaminated soil or water, or by treating the soil or water to reduce levels of contaminants, or by altering the chemical or physical form of the contaminants);
- Breaking, removing or disrupting the pathway parts of the linkage (e.g. a pathway could be disrupted by removing or reducing the chance that receptors might be exposed to contaminants, for example by installing gas membranes in a property, or by sealing land with a material such as clay or concrete); and
- Protecting or removing the receptor. For example, by changing the land use or restricting access to land it may be possible to reduce risks to below an unacceptable level. (DEFRA, Contaminated Land Statutory Guidance).

DEVELOPMENT REQUIREMENTS

To comply with Policy 33, part E and continue to protect the quality of soil and human health, applicants are required to carry out contaminated land assessments and take appropriate remediation measures for development on or near a site which is potentially contaminated or where a basement is included within the proposal.

3.6.2 Information

To ensure that remediation is effectively carried out the process may require a range of treatment, assessment and monitoring actions.

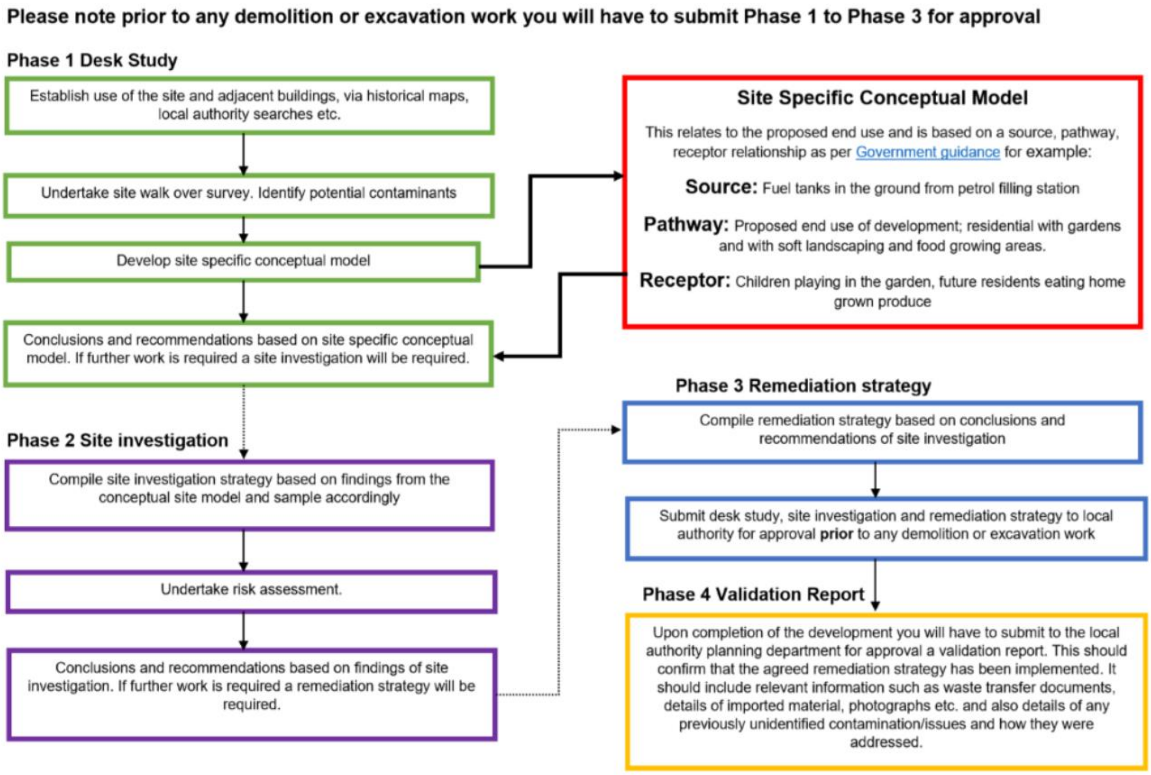


Figure 3 - Procedure for dealing with potential land contamination during the planning process. Please note prior to any demolition or excavation work you will have to submit Phase 1 to Phase 3 for approval.

3.6.3 Standards

As a starting point a desktop study should be carried out to identify possible areas of contaminated land. The results will be used to determine the necessity for any site investigation works and the scope of such works. The council can carry out an environmental search that includes historic maps and a formal letter describing the previous land uses of the site. Full details of the process and payment details can be found here.

Further information on these requirements can be found in the council's Contaminated Land Guidance, and the Code of Construction Practice.

3.7 Construction Impacts

Policy 33F requires development to comply with Westminster's Code of Construction Practice.

3.7.1 Key Considerations

The construction of new developments or refurbishments anywhere has the potential to result in substantial environmental impacts, many having the potential to cause significant disturbance to local residents and businesses. These impacts will obviously be felt more intensely in Westminster where there are simply more people and businesses likely to be nearby who will experience them. Impacts can include construction traffic, noise and vibration, dust and air pollution.

Wildlife in the UK is protected under the Wildlife and Countryside Act (1981) (as amended). Before starting any works to a building it is required to make sure that wildlife, and protected species would not be affected. Before undertaking works, the roof space needs to be checked for bird / bat roosts and other urban wildlife dependent on buildings for shelter.

Any works that would affect breeding birds and their nests, such as works of demolition, vegetation removal or site clearance, should be done outside the nesting season from 1st of March to 31st July inclusive. Also note that any scaffolding even for minor external works can prevent birds accessing their nest sites in buildings. Bats use existing holes and gaps in trees and buildings for nesting. They can fit in gaps as small as a human thumb, so be mindful of missing tiles or gaps within the roof soffits before you start any works.

DEVELOPMENT REQUIREMENTS

3.7.2 Information

Developments that are subject to an Environmental Impact Assessment (EIA)[8] are required to submit an assessment of potential construction impacts to noise sensitive receptors as part of the Environmental Statement submitted with the planning application.

For development below the EIA threshold, control of noise from construction sites comes after planning permission has been granted through the requirements in the Code of Construction Practice (CoCP). The CoCP deals with impacts resulting from the construction phase of development, including noise and vibration. The CoCP requires all types of development to submit a Noise and Vibration Mitigation Management Plan. Major developments are also required to submit noise and vibration monitoring and risk assessments.

CODE OF CONSTRUCTION PRACTICE

The Code of Construction Practice sets out the minimum standards and procedures for managing and minimising environmental impacts of construction projects in the city. The Code divides developments into different tiers related to their environmental impact and the flowchart below (Figure 4- Planning and Code of Construction Practice Process Map) sets out the application process for the code. For Level 1 and Level 2 projects[9] a Site Environmental Management Plan (SEMP), or, for basements, a Construction

[8] Schedules 1 and 2 of the 2017 EIA Regs (as amended): The Town and Country Planning (Environmental Impact Assessment Regulations 2017 (legislation.gov.uk)

[9] Level 1 projects: 'Large/strategic' 1 proposals that involve the creation of 100 or more new or additional residential units or the creation/ change of use of 10,000 sqm or more floorspace, or a comparable refurbishment. Level 2 projects: Developments

Management Plan (CMP) must be produced to demonstrate how the project will comply with the CoCP. Unless the development is subject to an EIA, SEMPs and CMPs will usually be submitted after planning permission is granted. For smaller 'Level 3' projects, a SEMP or CMP is not usually required. However, developers and contractors for these projects will be expected to comply with the relevant legislation covering demolition and construction impacts and to be considerate of the impacts their activities may have on neighbours.



Figure 4 - Planning and Code of Construction Practice Process Map

NOISE IMPACT ASSESSMENT

A Noise Impact Assessment (acoustic report) is required that sets out the noise and vibration impact from proposed demolition and construction activities on any identified noise sensitive receptors. The Noise Impact Assessment should identify where the nearest noise sensitive properties are located, and predict the noise level from the construction and demolition activities outside the nearest noise sensitive window over the duration of the project and set out any significant impacts.

involving the creation of 10 or more new build residential units, or buildings where the new build floorspace to be created is 1000 sqm or more, or a comparable refurbishment, or any basement developments

The report should provide an indication of what mitigation measures are likely to be required to mitigate noise and vibration impacts to meet the council's requirements.

Noise Thresholds for Construction Works is defined in BS5228 BS 5228- 1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1 Noise.

3.7.3 Standards

Agreement to sign up to the terms of the Code of Construction Practice will be evidenced via submission of a completed checklist provided in The Code of Construction Practice, secured through planning condition. This includes liaising with the public, site operations, traffic, transport and use of the public highway, noise and vibration, dust and air pollution, waste management, water pollution and flood risk, urban ecology, heritage assets, and protection of existing installations.

EIA development should in addition provide information upfront on construction impacts.

Proactive monitoring of construction impacts during the construction process should be planned for. (Noise and Vibration, and dust and air quality)

RESIDENTIAL DWELLINGS

When noise generated from construction and demolition activities, rounded to the nearest decibel, exceeds the values set out in Table 5 it indicates the potential significant impacts.

Table 7: Threshold of potential significant effect at dwellings

Assessment category and threshold value period	**Threshold value, in decibels (dB) ($L_{Aeq, T}$)**		
	Category A	Category B	Category C
Day-time (7am–7pm) and Saturdays (7am–1pm)	65	70	75

Note 1: A potential significant effect is indicated if the $L_{Aeq, T}$ noise level arising from the site exceeds the threshold level for the category appropriate to the ambient noise level.

Note 2: If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a potential significant effect is indicated if the total L_{AeqT} noise level for the period increases by more than 3 dB due to site noise.

Note 3: Applied to residential receptors only.

Category A: Threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

Category B: Threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.

Category C: Threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

OTHER NOISE SENSITIVE RECEPTORS

Noise levels generated by site activities are deemed to be potentially significant if the total noise (pre-construction ambient plus site noise) exceeds the pre-construction ambient noise by 5 dB or more, subject to lower cut-off values of 65 dB, LAeq, T from site noise alone, for the daytime and a duration of one month or more, unless works of a shorter duration are likely to result in significant effect.

These evaluative criteria are generally applicable to the following receptors:

- Hotels and hostels;
- Buildings in religious use;
- Buildings in educational use;
- Buildings in health and/or community use; and
- Businesses whose activities are particularly sensitive to the impact of external noise, such as recording studios.

Vibration Thresholds Noise Thresholds for Construction Works (as defined in BS5228 BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 2 Vibration).

When vibration generated from construction and demolition activities exceeds the values in Table 8, it indicates the potential significant impacts.

Table 8: Noise Thresholds for Construction Works

Vibration Level A), B) and C)	Effect
0.14 $mm \cdot s^{-1}$	• Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 $mm \cdot s^{-1}$	• Vibration might be just perceptible in residential environments.
1.0 $mm \cdot s^{-1}$	• It is likely that vibration of this level in residential environments will cause complaint but can be tolerated if prior warning and explanation has been given to residents.
10 $mm \cdot s^{-1}$	• Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.

A) The magnitudes of the values presented apply to a measurement position that is representative of the point of entry into the recipient.

B) A transfer function (which relates an external level to an internal level) needs to be applied if only external measurements are available.

C) Single or infrequent occurrences of these levels do not necessarily correspond to the stated effect in every case. The values are provided to give an initial indication of potential effects, and where these values are routinely measured or expected then an assessment in accordance with BS 6472-1 or-2, and/or other available guidance, might be appropriate to determine whether the time varying exposure is likely to give rise to any degree of adverse comment.

3.8 Monitoring

City Plan Key Performance Indicator 18: Noise complaints received.

City Plan Key Performance Indicator 21: Reduction of NOx and particulate matter (PM2.5 and PM10) concentration against national and regional Air Quality targets.

Code of Construction Practice monitoring.

4 Greening and Biodiversity

4.1 Policy Overview

- National

The Environment Act 2021

NPPF Chapter 11 – Making effective use of land

NPPF Chapter 12- Achieving well-designed places

NPPF Chapter 14- Meeting the challenge of climate change, flooding and coastal change

NPPF Chapter 15- Conserving and enhancing the natural environment

Protected species and development: advice for local planning authorities- GOV.UK

Statutory biodiversity metric tools and guides- GOV.UK

- Regional

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 SI5 Water infrastructure

London Plan: Urban Greening for Biodiversity Net Gain: A Design Guide

London Urban Forest Plan

- Local

City Plan Policy 34 Green infrastructure

City Plan Policy 31 Waterways and waterbodies

City Plan Policy 35 Flood risk

Conservation area audits, maps and guidance

Green Infrastructure Audit 2024

A Greening and Biodiversity Strategy for Westminster 2024

4.2 Introduction and Guidance

Westminster declared a climate emergency in 2019 and an ecological emergency in 2023. Through careful and considerate planning, the diverse functions and advantages provided by green and blue infrastructure assets can be used to adapt to climate change, mitigate its detrimental impacts, enhance biodiversity and potentially reverse some of the ecological damage from previous years. An integrated approach is essential to harness the full potential of our green network, maximising its benefits. Challenges such as biodiversity loss, flood risks, poor air quality, and the heat island effect can effectively be mitigated through nature-based solutions. Greening is essential for biodiversity and to address climate and ecological emergencies.

4.2.1 Greening

GREEN INFRASTRUCTURE

Green infrastructure is a strategically planned and delivered network comprising the broadest range of high-quality green and blue spaces and other environmental features. It should be designed and managed as a multifunctional resource capable of delivering ecological services and quality of life benefits. Its design and management should also respect and enhance the character and distinctiveness of an area regarding habitats and landscape types.

Green Infrastructure's potential to yield diverse benefits and methods for promoting them in line with existing policies and processes are explored in this section. It presents a clear vision for delivering a range of advantages, including:

- Improving biodiversity loss and addressing the ecological emergency.
- Improving the physical, social, wellbeing and mental health of residents and visitors.
- Making Westminster a better place to live, work and invest.
- Creating new green links and habitats between different parts of the city, contributing to an overall Greater London improved Green Infrastructure.
- Preparing the city for the impacts of climate change by mitigating flood risks, reducing pollution and contributing to moderating temperatures.
- Protecting and enhancing Westminster's existing green infrastructure, including trees and their contribution to cultural and natural heritage.

The 2023 State of Nature Report found that the UK is now one of the most nature-depleted countries. Between 1970-2021 the abundance of 753 species fell on average by 19% across the UK. There are a multitude of opportunities to contribute to the further greening of the city through development. The type and scale of measures that will be suitable will depend on the specific type, scale and context of the development. Examples of greening measures include green roofs and walls, rain gardens, planting, grassland, vegetated sustainable drainage systems (SuDS) and trees.

Green spaces, parks, gardens and allotments, canals [10]and the River Thames frontages not only provide health and wellbeing benefits and recreational opportunities but contribute to the character and attractiveness of the city and provide access to nature. Flowers on decorative or edible plants are all good for pollinators which ensure sustainability of greenery. Green spaces, regardless of their accessibility for the general public, can absorb substantial rain fall and therefore are an attenuation tool. Waterways and

[10] canalrivertrust.org.uk/enjoy-the-waterways

waterbodies are important for fulfilling other environmental functions such as supporting biodiversity, drainage and flood protection, urban cooling, and in some cases supporting sustainable transport.

The City Plan protects all existing open spaces. Whilst the Royal Parks are a huge asset, and they cover 19% of the city, not every resident in Westminster has close access to public open space. Figure 5 demonstrates the extent of open space deficiency[11] in our densely populated and urban city that has gone through ecological decline in previous decades.

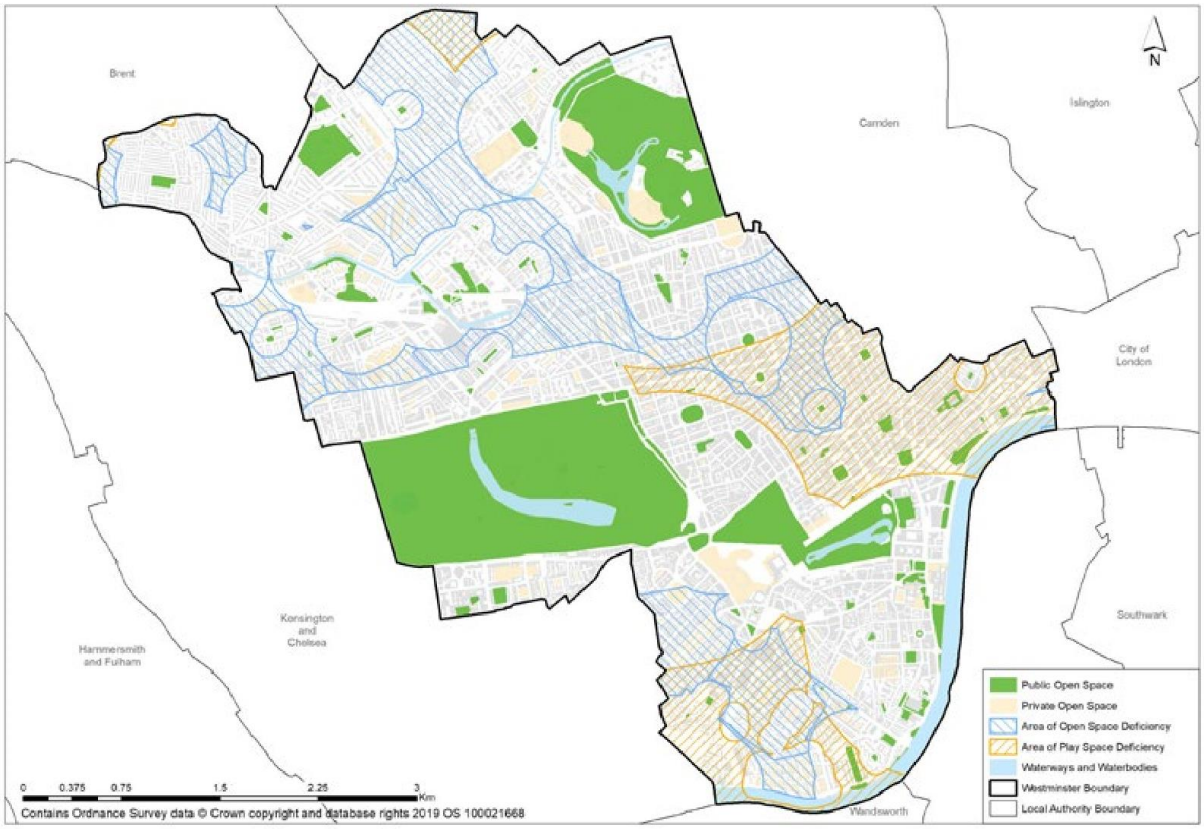


Figure 5 - Open Space Areas of Deficiency Map

The City Plan Policy 34 Green Infrastructure provides protection to all open spaces and their quality, heritage and ecological value, tranquillity and amenity. Given the creation of new green spaces is paramount for the wellbeing of residents and climate change mitigation, the City Plan also requires all new major developments to provide new or improved public open space and play space (Policy 34D).

It is challenging to deliver meaningful public open spaces in some very densely built-up areas. Developers need to innovate and seek to complement the existing networks or enable their spatial expansion. For example, through creation or extension of green routes, additions to existing pocket parks, greening walls to existing public courtyards, and so on. Considerations for new provisions should include spaces on ground and roof levels. Improvements to existing spaces should bring more greening to the city.

URBAN GREENING FACTOR

All major developments in Westminster are required to include urban greening as a fundamental element of site and building design (London Plan Policy G5). The Urban Greening Factor (UGF) is applied to evaluate the quantity and quality of urban greening provided by a proposal. The GLA provides a UGF calculator, available on their website, to help applicants calculate the score of a scheme and present the relevant information as part of their application.

[11] For methodology see Table 8.1 in the London Plan

The GLA's Urban Greening and Biodiversity Guide provides technical information about improvements to the greening of an area, and could be applied to all schemes, regardless of their scale and if they are brand new, retrofitting or simply betterment of existing property.

4.2.2 Biodiversity

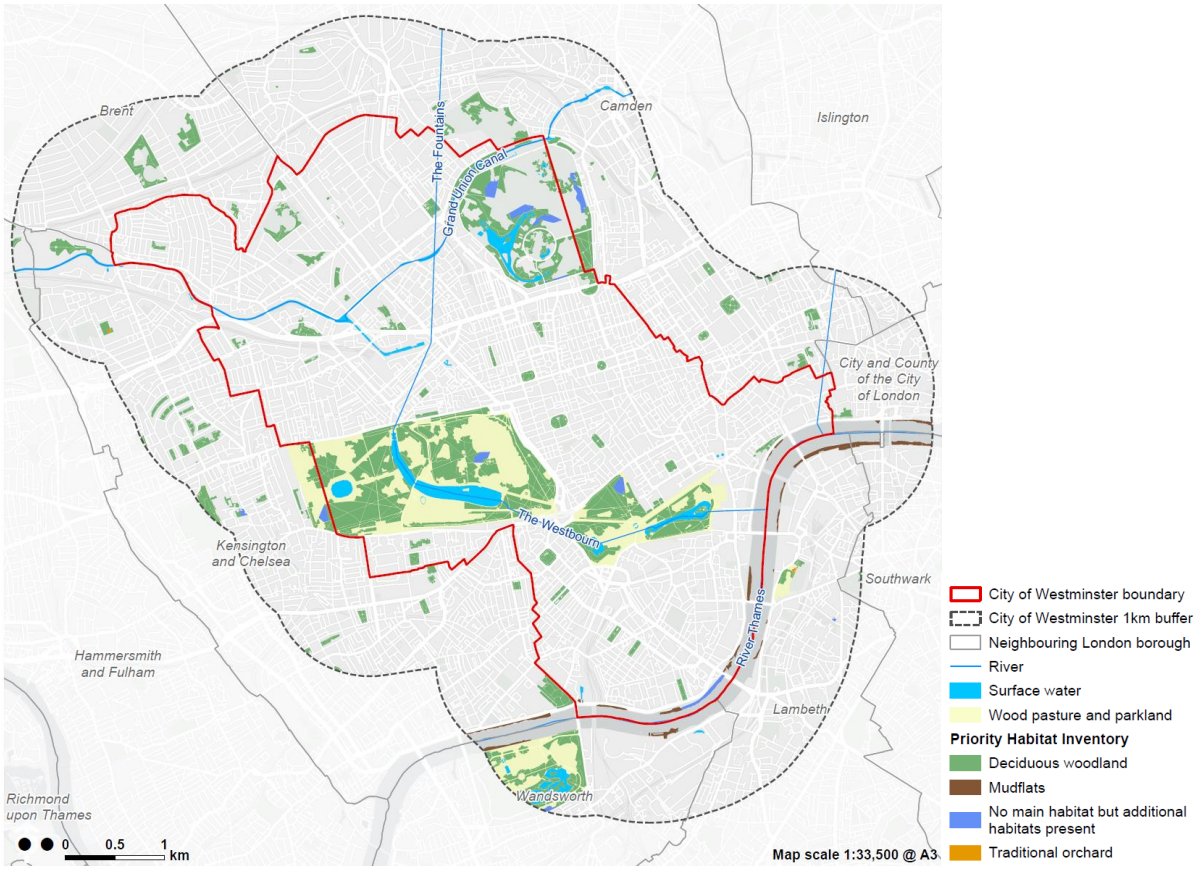
MEASURING BIODIVERSITY

In an urban context like ours, promoting biodiversity is crucial to enhancing the resilience and ecological health of the city. Thought should be given to the different types of biodiversity, ranging from plants to habitats and ecosystem, and focusing on how they can be integrated into the built environment. Measures of biodiversity could be species diversity, species richness, habitat diversity, population diversity, ecosystem diversity.

Species protection and enhancement of habitats of specific species that are threatened or endangered, such as providing nesting boxes for birds or creating breeding ponds for amphibians. Incorporating green spaces into the development, such as parks, gardens, and green roofs, which can provide habitat for wildlife as well as other benefits such as improving air quality and reducing the urban heat island effect.

SPECIES AND HABITATS

Priority habitats in Westminster include parks and green spaces, private gardens, waterways, including the Thames, standing water and woodland. Other important habitats in the city include built structures. Priority Habitats will be protected in line with City Plan Policy 34F and opportunities to create new habitats should be sought to meet biodiversity net gain and urban greening objectives (Policy 34B, 34G).



© Natural England copyright 2023. Contains Ordnance Survey data © Crown copyright and database right 2023.Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS. *Many PHI overlap with wood pasture and parkland/waterbodies. This figure is the total coverage excluding overlaps and excluding rivers and canals due to the different units of measurement.

Figure 6 Priority and notable habitats in Westminster

To support the conservation of London's wildlife the GLA has produced a list of priority species that are of conservation importance in London. Priority species should be considered when evaluating or delivering

projects which could impact upon a priority species or provide opportunities to support their conservation. The London priority species list also includes a category of Opportunity Species. These are priority species for which there are likely to be the most opportunity to provide new or enhanced areas of habitat for across London's greenspaces or within new development. The full list can be found here.

The following list includes species for which there are likely to be opportunities to provide integrated habitats or urban greening/ landscaping designed to provide suitable habitats in Westminster:

- Swift;
- Peregrine;
- House Sparrow;
- Starling; and
- Bats.

In addition to the above, there are a number of species where there is an opportunity to provide new or enhanced habitats in Westminster's existing green spaces and parks. As well as bats and birds, this includes butterflies, moths, toads, slowworms and hedgehogs, and the common frog. Applicants are encouraged to incorporate wildlife-friendly elements in their designs, e.g. planting creepers, creating vertical habitats, introducing bird boxes within gardens or 'swift bricks' within external walls, in a shaded location or spaces for bats within gardens and in the external walls of new or converted buildings, facing south. 'Swift bricks' are also used by house sparrows and other small bird species so are considered a 'universal brick'. Integrated nesting bricks are preferred to external boxes for reasons of longevity, reduced maintenance, better temperature regulation, and aesthetic integration with the building design.

This British Standard for specifies requirements for the selection and installation of integral nest boxes in buildings within new developments, including traditional, modular and modern methods of construction intended for new build developments for:

- Residential;
- Commercial, industrial and public buildings; and
- Renovation and refurbishment of A) Or B).

This British Standard covers the design and installation of integral nest boxes associated, principally, with the following bird species:

- Swift (Apus apus);
- Starling (Sturnus vulgaris);
- Great tit (Parus major);
- Blue tit (Cyanistes caeruleus); and
- House sparrow (Passer domesticus).

Natural England have produced further advice for developers regarding the impact of development on protected species and habitats. Plant species should be chosen that are well suited to the specific conditions and microclimate of the intended location. Historically many of our urban waterways have seen a net loss of biodiversity value through engineered concrete or steel sheet piled rivers banks. Developers of waterside development should explore opportunities to "green the edges" and/or enhance aquatic biodiversity.

PLANTING

The incorporation of plants into developments including new buildings serves multiple ecological purposes. Beyond providing essential food sources and habitats for local wildlife, contributing significantly

to overall biodiversity, these plants play a crucial role in supporting the local ecosystem's resilience. Whilst native planting is supported, it needs to be recognised that the climate in Westminster changed in the last decades due to human activity. The right planting in the right places should require light maintenance and water once established, contributing to the stability and sustainability of the environment. They should be resistant to the microclimate of particular locations which include for example, levels of air pollution, winds and urban heat levels.

The presence of native plants, many of which are excellent nectar sources, actively attracts important pollinators like bees and butterflies. This not only aids in the reproduction of flowering plants but also promotes the maintenance of a robust and thriving ecosystem within urban settings. Native plants have evolved to thrive in the local climate and soil conditions, making them well-suited for the London ecosystems on the ground level. Examples of specific native plants that could be incorporated:

- Common Bluebell (Hyacinthoides non-scripta);
- Wild Marjoram (Origanum vulgare);
- Hedgerow Cranesbill (Geranium pyrenaicum);
- Wild Rose (Rosa spp.);
- Foxglove (Digitalis purpurea);
- Yarrow (Achillea millefolium);
- Lavender Cotton (Santolina chamaecyparissus);
- Meadow Cranesbill (Geranium pratense);
- Common Knapweed (Centaurea nigra);
- Purple Loosestrife (Lythrum salicaria);
- Common Dogwood (Cornus sanguinea);
- Hawthorn (Crataegus monogyna);
- Wild Garlic (Allium ursinum);
- Field Scabious (Knautia arvensis);
- Sweet Violet (Viola odorata);
- Cowslip (Primula veris);
- Wood Anemone (Anemone nemorosa).

Drought-resilient planting should be considered in addition to native plants to ensure landscapes can withstand both current and future climate conditions. These plants should be selected for their ability to thrive in water-scarce conditions and extreme temperatures which are expected to become more frequent and severe in Westminster.

Specific setting of the plant should inform planting on walls and roofs, which needs to consider their exposure to particular physical challenges angled roots and elevation. They are likely to be out of reach to insects, including pollinators.

BNG BASELINE METRIC AND REQUIREMENT

Biodiversity net gain will be calculated using the statutory biodiversity metric which provides a standardised methodology for assessing the biodiversity value of a site before and after development. The baseline assessment should consider the existing biodiversity value and quality of the site and its surrounding areas. The metric should be applied by an appropriately qualified ecologist. The Chartered Institute of Ecology and Environmental Management publishes guidance on how to find a suitable consultant. Small sites metric can be used for minor development.

Link to guidance Statutory biodiversity metric tools and guides- GOV.UK

The biodiversity net gain should be achieved on-site wherever possible. If it is not realistically feasible to be achieved on-site, the developer must explore opportunities for off-site measures[12], prioritising enhancing biodiversity in proximity to the development. If on-site or off-site BNG is not possible then the purchase of statutory credits government[13] must be taken.

4.2.3 Key considerations

Westminster's approach to the natural environment is underpinned by the mitigation hierarchy set out in the National Planning Policy Framework.



Policy 34 of the City Plan outlines that the council is committed to protecting and enhancing the city's green infrastructure to maximise its environmental, social and economic value. The functions and benefits that our green and blue assets bring are diverse and include climate change adaptation, health and well-being, improving air quality, sport, leisure, recreation and play, landscape and heritage conservation, education, biodiversity and ecological resilience. The priority for Westminster is to increase biodiversity and greening. Compensation or off-setting the loss or harm to local natural environment is considered as the last option when considering new development.

URBAN HEAT ISLAND

Urban heat island effect, where temperatures in urban areas are significantly higher than their rural neighbours despite being exposed to the same weather conditions. Heat is absorbed by building materials such as concrete or asphalt, amplifying temperatures during the day and slowly releasing heat over night. As a result for example central London notes temperatures even 9 degrees higher than surrounding Green Belt.

Vegetation and water naturally regulate temperatures and have cooling effect. They can reduce air temperatures even by 7 degrees[14]. Increased planting reflects heat, provides shadow and as a result is cooling spaces. Westminster parks provide substantial relief from heatwaves in the heart of the city.
Water has also cooling properties, mainly due to energy needed for vapouring. River banks, ponds, canals and water features very effectively reduce temperatures whilst also nurture vegetation and absorb pollution.

The excessive heat negatively impacts ecosystems and human health. Abnormal temperatures alter weather patterns in longer periods of time. Milder winter temperatures and longer growing season in our climate zone may be considered as beneficial, however these anomalies may have negative impacts on ecosystems which require seasonal changes. They also trigger higher energy consumption needed for climate control or refrigeration.

[12] Search the biodiversity gain sites register- GOV.UK (www.gov.uk)
[13] Statutory biodiversity credit prices- GOV.UK (www.gov.uk)
[14] Urban Heat Snapshot – ARUP 2024

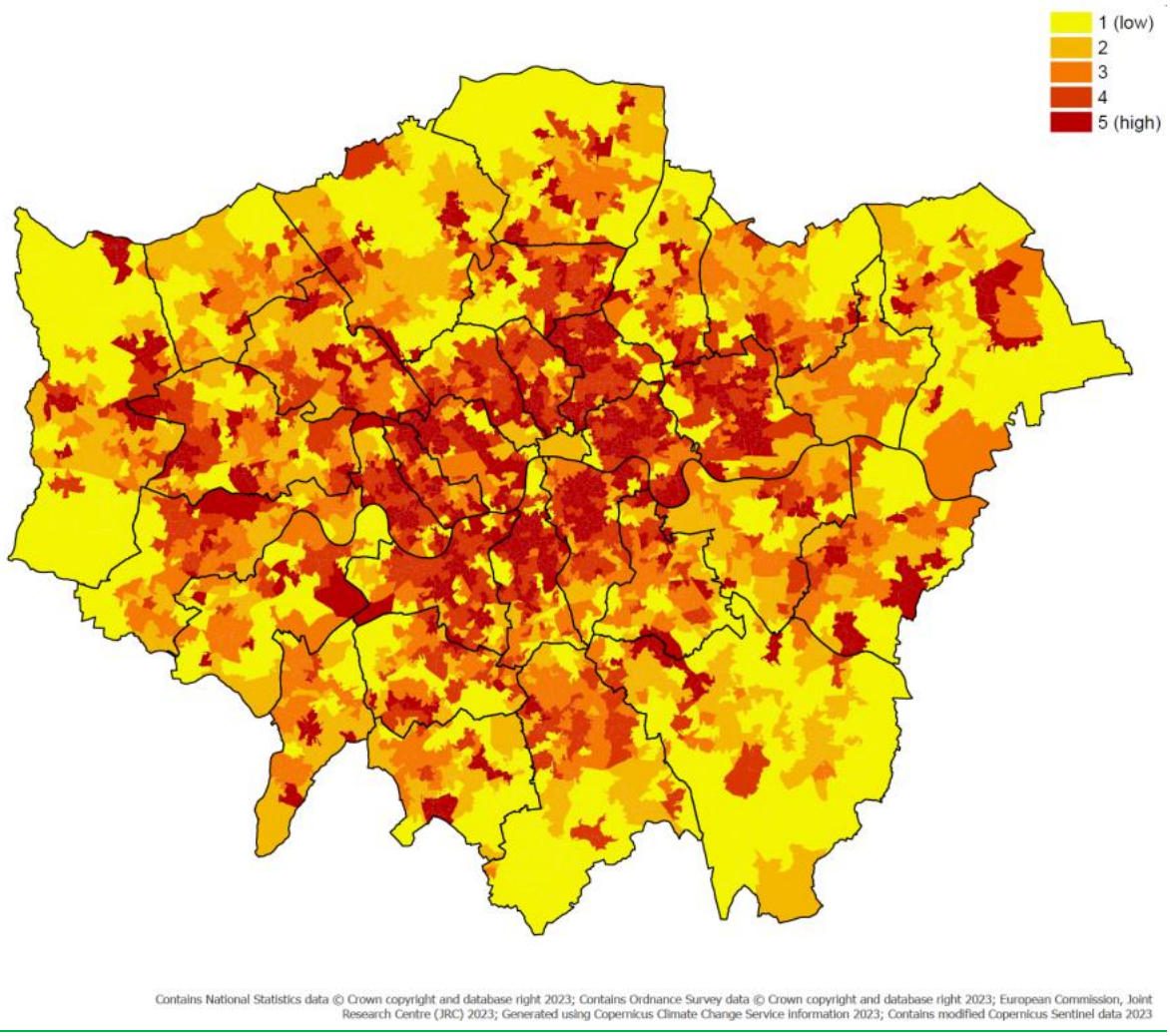


Figure 7 London Heat Hazard Map. Source: GLA 2023

Westminster has been identified by the GLA[15] as an area with high heat hazards based on the land cover type, tree canopy cover, building heights, reflectiveness of surfaces which determines how much incoming energy is immediately reflected back to space. The Figure 7 demonstrates that areas of the Green Belt, parks and areas with high concentration of gardens are more resilient to heat.

GREENING

Green infrastructure should be integrated into the urban environment, be an intrinsic part of the built environment. Whilst big concentrations of greenery in open spaces, gardens and allotments bring great benefits to wellbeing of residents and visitors, they are not sufficient to address climate change. Streets and buildings should contribute to the greening of Westminster. Trees, green walls and roofs should be considered to bring nature to the highly urbanised areas of the city. Greening should be integrated into building design and surrounding spaces from the initial stages in order to maximise potential benefits.

The Westminster specific Functional Greening Value Matrix provides guidance on appropriateness of different greening roles in a development proposal. This may be helpful for smaller schemes to be able to demonstrate a high greening value of development.

Trees

City Plan Policy 34H protects trees of amenity, ecological and historic value and those which contribute to the character and appearance of the townscape. The council has also produced audits of the designated

[15] Properties Vulnerable to Heat Impacts in London – GLA 2024

conservation areas that include information on trees that are important to the character of the area. The information on trees within these audits must also be considered.

It is important that as a first option trees should be retained. The retention of existing trees is more beneficial than tree removal and mitigating the loss with the planting of new trees. London Plan 2021 Policy G7 says if planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The planting of additional trees should generally be included in new development, particularly large canopied species which provide a wider range of benefits because of the larger surface area of their canopy.

Trees and other green infrastructure can perform a variety of different functions, and new trees need to be planted according to the principle of the 'right tree in the right place'. There are many considerations including:

- Species diversity and biodiversity;
- Other ecosystem services – for example air quality, pollution absorption;
- Soil characteristics and below ground constraints;
- Ultimate Size, form and canopy shape;
- Spatial relationship with existing and proposed trees;
- Townscape and urban design considerations;
- Suitability for specific site constraints and wider city environment;
- Climate change resilience;
- Aesthetic qualities;
- Specific negative characteristics for example brittle branches or surface rooting; and
- Biosecurity.

If planning permission is granted that necessitates the removal of hardwood trees, Developers should ensure that felled trees are destined for use as timber so as to 'lock in' absorbed carbon, as opposed to destined for use as biofuels or green waste streams.

Soils can become degraded and compacted on development sites, but maintaining good soil structure is important for biodiversity, carbon capture and storage and water storage/ flood attenuation. Maintenance and provision of adequate soil volumes in developments is also the best way to provide for sustainable long-term tree and other green infrastructure planting. Providing trees and green infrastructure in confined planters or soil volumes is the least preferred option as this can result in short life expectancies and the need for frequent replacement of trees and other plants. All management plans should adopt peat-free, sustainable water use and integrated pest management principles.

Green Roofs

Green roofs can provide a number of co-benefits including cooling and insulation of buildings, reducing water run-off and increasing biodiversity. They should all be biodiverse roofs, and should be designed to either replicate the habitat for a single or limited number of species or to create a range of habitats to maximise the array of species which inhabit the roof. There are a variety of green roofs that can be used within a project. These include:

- Extensive green roof – Low nutrient and low maintenance, also often designed to be light weight.
- Semi intensive green roof – Intermediate green roof type with characteristics of both extensive and intensive green roofs. They are positive for biodiversity due to its range of predominantly drought resistant plants. Occasionally managed, and usually planted with a range of plant species.

- Intensive green roof – A green roof that requires intensive maintenance. Equivalent to a garden and usually referred to as a roof garden.

For more information on green roofs, including design, construction practice and maintenance see: greenroofguide.co.uk

Green Walls

Green walls can be designed as green façades (climbing plants) or living walls (intensive green wall systems that are composed of textiles, modules, pockets, or troughs). A key design consideration for a green wall is its location with regard to temperature, light levels and exposure to the elements, and function such as decoration, insulation or air quality improvement.

Green façades where climbing plants and vines are rooted in the ground or elevated planter boxes – these are grown vertically directly onto the façade (extensive) or separately on trellis work (semi-intensive).

Living wall systems where plants are artificially supported ('intensive' – using growing media, artificial substrates, irrigation systems or hydroponics). This is where manufacturers/ designers breaks this down into:

- Planter troughs, modular pocketed panels;
- Foam substrate;
- Layers of felt sheeting; and
- Mineral wool.

Public safety, security, maintenance and water use should be considered when designing green walls. For more information or ideas on wall greening solutions, please visit: thenbs.com/knowledge/the-nbs-guide-to-facade-greening-part-two.

BIODIVERSITY

Policy 34G of the City Plan outlines the requirement for a biodiversity net gain (BNG); the quantifiable and verifiable improvement in biodiversity resulting from a development project, which ensures that the natural environment is left in a better state than predevelopment. It aims to promote the conservation and enhancement of biodiversity by ensuring that new developments contribute positively to the overall biodiversity within the local area, across a variety of life forms within an ecosystem, including species, genetic diversity, and ecological processes.

New developments need to deliver measurable net gains in biodiversity, leaving the environment in a better state than before a project began. The National Planning Policy Guidance on Biodiversity Net Gain[16] provides information on key development considerations and processes involved in implementation of policies associated with BNG.

There are links between biodiversity net gain and urban greening and surface cover types that score highest in the London Plan's Urban Greening Factor are also the ones which have the most potential to provide benefits for biodiversity. The GLA has published Urban Greening for Biodiversity Net Gain: A Design Guide which introduces simple design considerations for different types of urban greening features which can make space for nature in the built environment.

[16] Biodiversity net gain- GOV.UK

4.3 Development Requirements

4.3.1 Information

GREENING

Trees

Where proposals will affect existing trees within the application site or on land adjacent to the site (including street trees), proposals should be accompanied by an up-to-date tree survey, arboricultural implications assessment and details of tree protection measures. This information should be prepared by a suitably qualified arboriculturist in accordance with the recommendations of BS5837: 2012 (Trees in relation to design, demolition and construction– Recommendations), and should include:

- A scaled plan that shows the position and crown spread of every tree with a stem diameter of over 75mm measured over the bark at 1.5 m above ground level, and shrub masses and hedges on the application site and adjacent land. For individual trees, the crown spread taken at four cardinal points;
- A schedule of tree details and their categorisation;
- Details of the root protection areas (RPAs) of the trees and details of any proposed alterations to the existing ground levels or any other works to be undertaken within the RPA of any tree within the tree survey plan and schedule. This includes any proposals for service trenches;
- Details of all proposed tree surgery and removal, and the reasons for the proposed works;
- Tree constraints, the RPA and any other relevant constraints plotted around each of the trees on relevant drawings, including proposed site layout plans;
- An arboricultural impact assessment that evaluates the direct and indirect effects of the proposed design and where necessary recommends mitigation;
- A tree protection plan superimposed on a layout plan, based on the topographical survey, and details of all tree protection measures for every tree proposed to be retained for the duration of the course of the development, and showing all hard surfacing and other existing structures within the RPA. This should take account of anticipated construction requirements;
- Details of the size, species and location of replacement trees proposed for any trees shown to be removed; and
- Strategic hard and soft landscape design, including species and location of new tree planting.

Applicants should demonstrate that basement development will protect important trees and the garden setting and ensure surface water drainage is maintained through adequate depth and volume of soil. See sub-chapter 5.2.6 on SuDS for further information.

Green Roofs

Details of the design and construction and a management plan will be required for green roof developments at full application stage. These should include details of the depth and specification of the substrate, the number, size, species and density of the proposed planting, and details of maintenance regime (frequency of operations, timing of operations and who is responsible), and irrigation. The

irrigation provided should be sustainable (i.e. not mains water) and the roof should provide the maximum biodiversity benefits within the site constraints.

It should also be demonstrated that structural requirements to accommodate a green roof site have been considered. The structure needs to be able to accommodate the additional loading required for the depth of substrate. Other constraints will also be considered at pre-application and application stage, such as height, orientation, exposure and safety.

Green Walls

An application involving a green wall (similar to a green roof mentioned above) should include details of their design construction and management, demonstrating the design and choice of species has been taken into account. Green wall proposals should be accompanied by a fire risk evaluation at application stage. Along with site specific constraints such as height/ orientation/ exposure/ and structural requirements and that benefits to biodiversity will be maximised. An appropriate maintenance regime and access are important, and a management plan should be provided at application stage. Details may be secured by a condition.

BIODIVERSITY

The Environment Act 2021 sets out that all developments, with some exemptions[17], are subject to mandatory biodiversity net gain and will be required to submit a biodiversity gain plan for approval by the planning authority prior to commencement. This is required under the 'General condition of planning permission' added as Schedule 7A to the Town and Country Planning Act 1990 (under Schedule 14 of the Environment Act).

The Environment Act sets out that the biodiversity gain plan should cover:

- How adverse impacts on habitats have been minimised;
- The pre-development biodiversity value of the onsite habitat;
- The post-development biodiversity value of the onsite habitat;
- The biodiversity value of any offsite habitat provided in relation to the development;
- Any statutory biodiversity credits purchased.

Applicants should submit a biodiversity net gain statement, a scaled plan and a completed statutory biodiversity metric as part of the planning application, outlining the proposed measures for achieving the required biodiversity net gain, as detailed in the council's Full List of Planning Application Validation Requirements.

The council will be responsible for the monitoring and assess the implementation of the biodiversity net gain measures during the construction and operational phases of the development. Applicants should provide progress reports and monitoring data to demonstrate compliance with the biodiversity net gain requirement. These reports will need to be prepared by qualified ecologists.

Please note that a biodiversity survey and assessment may be a requirement where a proposed development is on or close to a Site of Importance for Nature Conservation (SINC) and would impact a priority species or habitat, or another ecological feature outside the SINC network.

[17] See: Biodiversity net gain: exempt developments- GOV.UK

4.3.2 Standards

GREENING

All development proposals should contribute to the greening of the city by incorporating appropriate elements of green infrastructure that are integrated into London's wider green infrastructure network. The London Plan 2021 Policy G5 sets out the requirement of Urban Greening Factor (see: section 0 above) score of 0.4 for residential developments, and a target score of 0.3 for commercial development (excluding B2 and B8 uses). Guidance on the UGF is available at the GLA and applicants should refer to this: london.gov.uk/what-we-do/ planning/implementing-londonplan/london-plan-guidance.

Trees

In the majority of cases, a minimum 1.0m soil plus 200mm drainage layer will provide sufficient soil volumes to support tree growth and health to maturity. In some circumstances, for example where the basement area proposed is extensive, where trees will be planted in confined locations, where the root growth will be impeded, or where particularly large new trees are proposed, soil depths of up to 1.5m (plus drainage layer) will be needed to support tree growth. Details of the proposed soil profile and composition should also be provided.

Green Roofs

Each type of green roof has specific technical design parameters and these include:

- Extensive green roof –Not irrigated. Usually shallow substrate, typically less than 100mm, and often vegetated with sedum.
- Semi intensive green roof – Typically, 100mm to 200mm substrate depth, sometimes irrigated, occasionally managed.
- Intensive green roof – Usually irrigated and usually with more than 200mm depth of substrate. Equivalent to a garden and usually referred to as a roof garden.

Green roof systems need to incorporate rainwater drainage to channel excess water during particularly heavy rains.

Green Walls

Green walls require careful selection of species, type of structure and watering arrangements. Whilst green facades may successfully grow in natural conditions, reliable irrigation and nutrition systems are essential for living walls. Green walls require between 0.5- 1.5 litres per sqm per day.

The use of green walls on buildings may be appropriate, and are encouraged, in many circumstances, such as on low-rise residential buildings not exceeding 18 metres in height. however, they must comply with fire safety requirements under the Building Regulations 2010[18]. Of particular importance is Regulation 7(2), which prohibits the use of combustible materials on external walls of relevant buildings, as defined in Regulation 2. Examples include high-rise residential buildings (above 18 metres in height), buildings with vulnerable occupants such as hospitals or care homes, or certain commercial or public buildings where large numbers of people congregate such as shopping centres, sports venues or schools.

Compliance with fire safety requirements such as preventing fire spread (Requirement B4), maintaining compartmentation (B3), ensuring safe escape routes (B1), and preserving firefighting access (B5) from Approved Document B is essential. Specific examples of these mitigations' measures include:

[18] The Building Regulations 2010

- The selection of non-combustible or limited combustibility materials for substrates, frames or fixings for the green wall system, such as those made of metal or other materials classified as Class A1 or A2 under European standards.
- The use of plants with low biomass or high water content, which are less likely to ignite or sustain combustion. Example species include succulents, ferns, or other species known for their fire resistance.
- Ensuring that the green wall has an automated and consistent irrigation system to maintain plant moisture levels, reducing the risk of ignition.
- Incorporate horizontal and vertical fire breaks made from non-combustible materials at regular intervals within the green wall to aid with compartmentalisation and limit fire spread.
- The siting and orientation of green walls away from heat sources, external vents, or flammable materials stored nearby.
- Implementation of a maintenance plan to remove dead or dry vegetation, ensuring that plant biomass remains low and safe.
- Design green walls to avoid obstructing escape routes or firefighting access points, ensuring compliance with Requirements B1 and B5 of Approved Document B.

Risks identified in guidance from the Fire Protection Association include plant biomass combustibility and flammable plastics, which can be mitigated through maintenance, irrigation, and the implementation of fire breaks.

Given the challenges of applying standard fire tests like the Single Burning Item Test (EN 13823) to green walls, an engineered fire assessment by a competent fire safety professional is strongly recommended.

BIODIVERSITY

The current national biodiversity net gain (BNG)requirement is at least 10%. However, given the need to actively mitigate ecological emergency and climate change in a very urban environment, developments should, wherever possible, aim to significantly enhance biodiversity and achieve the level of biodiversity net gain of minimum 30% post-completion.

In Westminster, urban blocks have historically had limited biodiversity, with built and natural environments often kept separate. As a result, enhancing biodiversity in these areas could be relatively straightforward. Recently, there have been a number of schemes achieving significant BNG uplift through relatively uncomplicated additional greening on site.

Developers must seek to deliver BNG on-site, integrating biodiversity enhancements within the development footprint. Other approaches could be considered in exceptional circumstances in-line with the sequential approach laid down by National-level guidance, within the boundaries of the City of Westminster.

In cases where the baseline biodiversity is 0, the Urban Greening Factor targets set out in the London Plan should be used. New developments should maximise their positive contributions to address Westminster's ecological and climate emergencies. A greener city would provide health benefits for local communities and visitors and improve our carbon footprint.

4.4 Monitoring

City Plan Key Performance Indicator 23: Net change in Sites of Importance for Nature Conservation (SINCs) and designated open space.

City Plan Key Performance Indicator 24: Delivery of play space in areas of play space deficiency.

City Plan Key Performance Indicator 25: Improvements to parks, play areas and other open spaces.

City Plan Key Performance Indicator 26: Number of open spaces awarded the Green Flag Award.

City Plan Key Performance Indicator 27: Applications incorporating living walls and roofs.

5 Flood Risk

5.1 Policy Overview

- National

NPPF Chapter 12- Achieving well-designed places

NPPF Chapter 14- Meeting the challenge of climate change, flooding and coastal change

National Planning Policy Framework Planning Practice Guidance; Flood Risk and Coastal Change, updated August 2022 from DLUHC and MHCLG

Flood Risk Regulations 2009

Flood and Water Management Act 2010

- Regional

London Plan Policy SI 12 Flood risk management

London Plan Policy SI 13 Sustainable Drainage

London Plan Policy 5.12 Flood risk management

London Regional Flood Risk Appraisal 2018

Thames Estuary 2100 (TE2100)

London Surface Water Strategy

- Local

City Plan Policy 35 Flood risk

Strategic Flood Risk Assessment 2023 (SFRA 2023)

Local Flood Risk Management Strategy (LFRMS)

5.2 Introduction and Guidance

The frequency and severity of flooding is increasing due to climate change, and Westminster's flood risk guidance and strategies are imperative to managing this risk. This chapter aims to provide guidance to ensure that development and land use decisions are made in a manner that considers both existing flood risk and future projections.

The increased occurrence of intense rainfall events can overwhelm existing drainage systems and lead to rapid and extensive surface water flooding. Whilst existing flood defences such as the Thames Barrier and the river walls afford Westminster with a high protection from the River Thames, these will need future upgrading.

5.2.1 Westminster's Flood Risk

The SFRA (2023) sets out the flood risk within Westminster coming from a number of sources including:

- Fluvial (river);
- Tidal (the sea);
- Surface Water;
- Sewers;
- Groundwater;
- Canals; and,
- Reservoirs.

Mitigating flood risk in Westminster is a priority as flooding not only poses a danger to the built environment, but poses immediate threats to human safety and can have long-term consequences for the environment. Flood risk assessments for developments must be a factor in determining suitability.

Certainland uses may be unsuitablein certain locations. Development that is in higher risk areas needs to incorporate flood-resistant design and construction techniques to mitigate flood risk. This may involve elevating structures above base flood elevation, using flood-resistant materials, designing proper and sustainable drainage systems, and implementing flood mitigation measures.

Integrating flood risk assessment, adaptation measures, and sustainable development practices will see more resilient communities, protect valuable assets, and safeguard our environment from the detrimental impacts of flooding.

5.2.2 Flood Zones

The city is divided into three flood zones as shown in our SFRA. The three categories, designated by the Environment Agency, are organised into a hierarchy of risk factor, with Flood Zone 3 split into two sub-categories. These three flood zones relate to the probability of the River Thames and tidal (sea) flood risk.

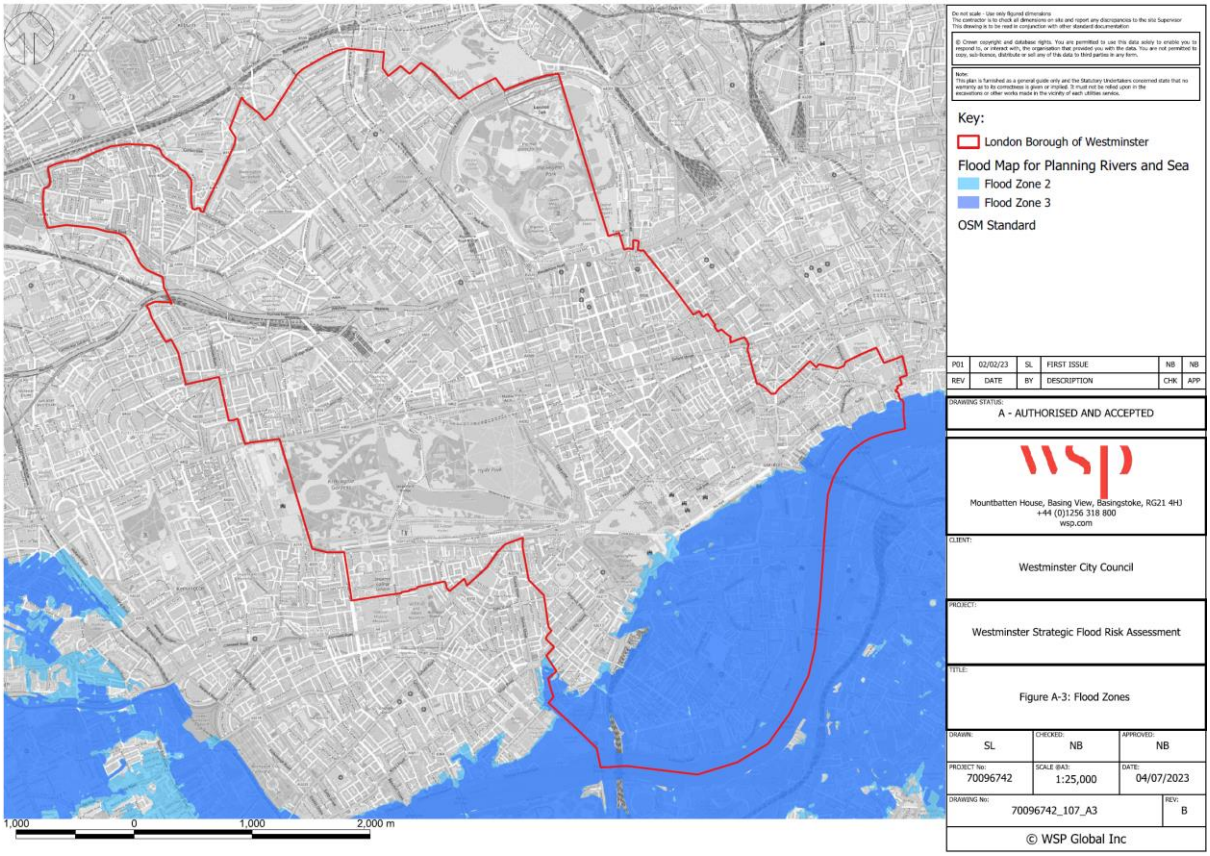


Figure 8: Flood Zones (SFRA, 2023)

Flood Zone 1 comprises of most of the city and is designated as low risk of flooding; Flood Zone 2 is designated at medium risk of flooding and Flood Zone 3 is classified at high risk of flooding. The map above shows that areas at highest risk of flooding (Flood Zones 2 and 3) are in the southeast of the city.

Flood Zone	Description
Flood Zone 1	This zone comprises land assessed as having less than a 0.1% (1 in 1,000) annual probability of river or sea flooding in any year (shown as 'clear' in Figure 7 – all land outside Zones 2 and 3).
Flood Zone 2	This zone comprises land assessed as having between a 1% (1 in 100) and 0.1% (1 in 1,000) annual probability of river flooding (1%- 0.1%) or between a 0.5% (1 in 200) and 0.1% (1 in 1,000) annual probability of sea flooding in any year (land shown in light blue in Figure 7).
Flood Zone 3a	This zone comprises land assessed as having a 1% (1 in 100) or greater annual probability of river flooding or a 0.5% (1 in 200) or greater annual probability of flooding from the sea in any year (land shown in dark blue in Figure 7).
Flood Zone 3b	This zone comprises land where water from rivers or sea has to flow or be stored in times of flood.

5.2.3 Surface Water Flooding

Surface water flooding is caused when rainfall overwhelms the capacity of the drainage systems. Surface water flooding is a direct, quick, and localised consequence of prolonged and/or heavy rainfall. Due to the heavily urbanised nature of Westminster, and the predominantly Victorian drainage infrastructure, there is a widespread risk of surface water flooding.

It is crucial to prioritise the design of drainage systems to minimise and mitigate surface water flood risk. Inadequate design and maintenance of drainage systems can result in surface water flooding during periods of heavy rainfall. The implemented measures should be capable of handling the most intense rainfalls expected throughout the lifespan of the structures (approximately 60 years for commercial development and 100 years for residential development). Moreover, they should contribute to reducing and slowing down the runoff from a site.

The previous SFRA (2019) referenced surface water flood risk hotspots which were based on the initial model created for the draft Surface water Management Plan and Preliminary Flood Risk Assessment. This model has since been updated and the surface water risk hotspots have been superseded by the surface water management zones, as shown in the figure below. Development proposed within these zones will therefore require more detailed flood risk assessments.

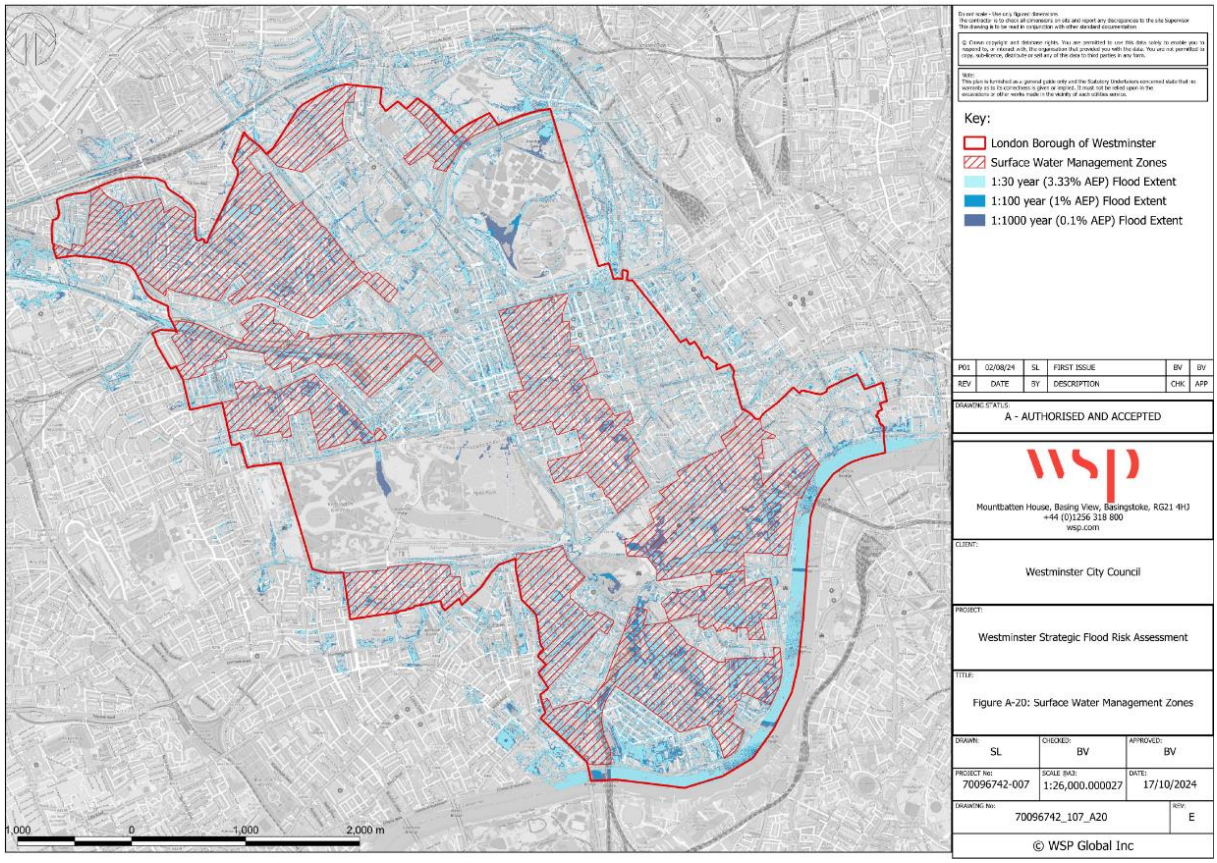


Figure 9: Surface Water Management Zones (WCC SFRA, 2023)

For new developments, the SFRA should inform site-specific flood risk assessments as evidence to support the sequential and exceptions tests for individual applications (discussed below) and suggests methods of reducing causes and impacts of flooding for developments.

The council has produced checklists that applicants can use as an FRA. These can be found on the planning flooding pages on our website. Further guidance also exists from central government on undertaking FRAs for planning applications.

5.2.4 Tidal and Fluvial Flooding (the River Thames)

The embankment wall defends Westminster from tidal and fluvial flooding. Responsibility for maintenance and repair of the flood wall sits with the council, and the relevant landowners whom we partner with, alongside Thames Water and the Environment Agency to ensure that the appropriate standards are maintained.

The Thames Estuary 2100 (TE2100) Plan sets out recommendations for managing tidal flood risk in the Thames Estuary. The TE2100 Plan has three phases of activity: until 2035 this is to maintain and improve current defences, safeguard areas required for future improvements, and monitor climate change indicators. TE2100 recommendations for Westminster are included in City Plan Policy 35 and include protecting and improving flood defences. The TE2100 Plan introduces a riverside strategy approach and states that riverside defences west of the Thames Barrier, including in Westminster, will need raising by 2050.

5.2.5 Tidal Property Flood Resilience Recommendations

Property Flood Resilience (PFR) measures should be considered in areas at risk of tidal breach flooding where appropriate and depending on the level of risk and nature of the proposal. This can help minimise the impacts of flooding and facilitate recovery efforts sooner than conventional buildings. PFR measures should be considered also for basement developments within Flood Zone 2 and 3.

PFR could include:

- External walls: careful consideration of materials using low permeability materials to limit water penetration (avoiding using timber frame and cavity walls). Consider applying a water-resistant coating.
- Windows: flood resistant windows if they are to be located below the maximum water level expected. These windows should be watertight and be able to withstand the high pressure exerted on them when submerged under flood water (and the debris contained in the water).
- Air vents: should not be located below the maximum water level expected.
- Internal walls: avoid the use of gypsum plaster and plasterboard at the lower ground level; use more flood resistant linings (e.g. hydraulic lime, ceramic tiles). Avoid use of stud partition walls.
- Fitting, fixture and services: if possible, locate all fittings, fixtures and services above the maximum water level expected to minimise damage by flood waters. Avoid chipboard and medium density fibreboard. Consider the use of removable plastic fittings. Use solid doors treated with waterproof coatings. Avoid fitted carpets. Locate electrical, gas and telephone equipment and systems above design flood level. Fit anti-flooding devices to drainage systems to prevent surcharged flooding. These devices act as one-way valves, preventing sewage backing up into the buildings through sinks and toilets.

5.2.6 Sustainable Drainage Systems (SuDS)

The most effective approach to address surface water flood risk is to incorporate sustainable drainage systems (SuDS), which offer a method to manage surface water in a way that emulates the natural environment. They attenuate surface water runoff from heavy rainfall events and slow the flow of water, which results in less pressure on the combined sewage system. SuDS can also yield wider benefits, such as:

- Capturing, reusing and filtering rainwater
- Providing amenity benefits through recreational areas
- Providing biodiversity benefits

Avoiding development in areas at risk of surface water flooding is not always possible, particularly in a densely built-up city such as Westminster where there are few development sites available. Planning for new developments requires careful consideration of surface water flood risk and this guidance aims to assist in designing developments that mitigate associated risks. Additionally, this document emphasises the potential of brownfield redevelopment as an opportunity to locally reduce surface water flood risk in a sustainable manner through the implementation of SuDS. By reducing the peak rate and volume of surface water runoff, we can improve resilience compared to baseline conditions.

Policy 35J requires that new developments must incorporate SuDS to alleviate and manage surface water flood risk. The aim is to minimise surface water runoff from developments, reduce the strain on drainage systems, and contribute to the overall resilience of communities in the face of flooding events.

Types of sustainable drainage measures to consider:

- Green roofs: Installing green roofs on buildings helps to reduce stormwater runoff by retaining rainwater and allowing it to be absorbed. Green roofs also provide additional benefits such as improving air quality, reducing urban heat island effect, and enhancing biodiversity.
- Permeable paving materials: Utilising permeable pavement materials, such as permeable concrete or porous materials, allows rainwater to infiltrate through the surface into the underlying soil or drainage system. Permeable pavement reduces rainwater runoff and helps to mitigate flooding and water pollution. All new developments, with associated driveways and paving, should utilise permeable materials to allow for the infiltration of rainwater into the ground. The requirement also applies to major renovations or modifications, that require planning permission, that involve substantial changes to existing driveways or paving. Permeable materials should ensure their durability, stability, and long-term performance.
- Rain gardens: Rain gardens are shallow, landscaped depressions that capture and store rainwater runoff. They are designed with vegetation and engineered soils that promote filtration of rainwater. Rain gardens enhance the aesthetic value of urban areas, support biodiversity, and improve water quality by removing pollutants, but should be carefully designed to avoid adverse impacts on existing trees.
- The emerging Westminster's Highway SuDS Design Manual provides detailed designs for a range of SuDS features suitable to be retrofitted into the public realm.

5.3 Development Requirements

5.3.1 Information

THE SEQUENTIAL TEST

The Sequential Test ensures that a sequential approach is followed to steer new development to areas with the lowest probability of flooding. However, given the various flood risks, densely developed urban landscape, limited land availability, complex development pressures and land-use patterns in Westminster, it is impractical to employ the Sequential Test to distinguish between potential development sites. Therefore, development within Flood Zones 2 and 3 will be considered and, generally, proposals in these zones will be considered sequentially acceptable, contingent upon compliance with the NPPF Flood Risk Vulnerability Classification and fulfilling the Exception Test requirements where applicable (e.g., residential development in Flood Zone 3). Refer to the Vulnerability Classification Table for development categories, their vulnerability classifications, and the need for an exception test.

THE EXCEPTION TEST

The Exception Test is required for certain development sites following application of the Sequential Test. The Exception Test must demonstrate that the development provides wider sustainability benefits to the community that outweigh flood risk, and that the site is safe from flood risk for its lifetime.

Westminster benefits from significant Tidal Flood Defence infrastructure and under ordinary operational conditions, is not at risk of flooding from the Thames. It is considered appropriate to assess flood risk from tidal and fluvial sources within Westminster as Low, however some areas are considered at greater residual risk when located in a Rapid Inundation Zone (RIZ) as shown in Figure 1. These areas will therefore require greater consideration of factors such as flood resilience and safe access and egress.

Avoiding areas at risk of surface water flooding is difficult however new development can be designed to mitigate any associated risk. In addition, all brownfield redevelopment provides the opportunity to reduce surface water flood risk locally in a sustainable way, by implementing SuDS, and reducing the peak rate and volume of surface water run-off when compared to the baseline condition. Redevelopment within areas of existing surface water flood risk must include appropriate mitigation measures to reduce flood risk.

Both elements of the Exception Test should be satisfied, where applicable, for development to be allocated or permitted. For the Exception Test to be passed:

Development that must be in a flood risk area should provide wider sustainability benefits to the community that outweigh the flood risk, such as on-site greening or improving the energy performance of a building; and s site-specific Flood Risk Assessment, as described in section 7.3.1.4, must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, reducing flood risk overall through the installation of SuDS.

VULNERABILITY CLASSIFICATION

Table 9: Development Types and Appropriate Flood Zone Designations

Vulnerability Classification	Development Types	Flood Zone 1	Flood Zone 2	Flood Zone 3A	Flood Zone 3B
Essential infrastructure	Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.	✓	✓	ET	ET
	Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood.	✓	✓	ET	ET
	Wind turbines.	✓	✓	ET	ET
	Solar farms.	✓	✓	ET	ET
Highly vulnerable	Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding.	✓	ET	X	X
	Emergency dispersal points.	✓	ET	X	X
	Basement dwellings.	✓	ET	X	X
	Caravans, mobile homes and park homes intended for permanent residential use.	✓	ET	X	X
	Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in	✓	ET	X	X

	other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure').				
More vulnerable	Hospitals.	✓	✓	ET	X
	Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.	✓	✓	ET	X
	Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.	✓	✓	ET	X
	Non–residential uses for health services, nurseries and educational establishments.	✓	✓	ET	X
	Landfill* and sites used for waste management facilities for hazardous waste.	✓	✓	ET	X
	Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.	✓	✓	ET	X
Less vulnerable	Police, ambulance and fire stations which are not required to be operational during flooding.	✓	✓	✓	X
	Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure.	✓	✓	✓	X
	Land and buildings used for agriculture and forestry.	✓	✓	✓	X
	Waste treatment (except landfill* and hazardous waste facilities).	✓	✓	✓	X

	Minerals working and processing (except for sand and gravel working).	✓	✓	✓	X
	Water treatment works which do not need to remain operational during times of flood.	✓	✓	✓	X
	Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.	✓	✓	✓	X
	Car parks.	✓	✓	✓	X
Water - compatible development	Flood control infrastructure.	✓	✓	✓	✓ *
	Water transmission infrastructure and pumping stations.	✓	✓	✓	✓ *
	Sewage transmission infrastructure and pumping stations.	✓	✓	✓	✓ *
	Sand and gravel working.	✓	✓	✓	✓ *
	Docks, marinas and wharves.	✓	✓	✓	✓ *
	Navigation facilities.	✓	✓	✓	✓ *
	Ministry of Defence installations.	✓	✓	✓	✓ *
	Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.	✓	✓	✓	✓ *
	Lifeguard and coastguard stations.	✓	✓	✓	✓ *
	Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.	✓	✓	✓	✓ *
	Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.	✓	✓	✓	✓ *

✓ Development is appropriate **X** Development is not appropriate ET: Exception Test will be required.

* In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

SITE SPECIFIC FLOOD RISK ASSESSMENTS

Site specific FRAs[19] are standalone documents submitted by the developer to accompany a planning application. In those instances where an Environmental Statement is required for a development the developer should ensure that the FRA is attached and informs the Environmental Statement.

The detail provided in the FRA should be based on up-to-date existing flooding information (e.g. SFRA 2023, Environment Agency's Flood Map for Planning, breach modelling results taken from the Thames Tidal Upriver Breach Inundation Assessment and history of flooding at the site) and be commensurate to the probability and associated risk of flooding for the proposed development taking into account the nature of the proposals: for example risk for a commercial property is generally lower than that for a residential development. Where the probability of flooding to the site is negligible there is little benefit to be gained in assessing the potential risk to life and/or property as a result of flooding.

Rather, emphasis should be placed on ensuring that runoff from the site is controlled safely and sustainably on-site and does not exacerbate flooding lower in the catchment.

We recommend visiting our website, which provides a guidance for developing FRAs. The level of information included should be proportionate to the scale/nature/location of the development and the degree of flood risk. The Environment Agency and any other relevant bodies, for example Thames Water, should also be consulted. These relevant bodies will be able to provide useful background information to inform the assessment and the mitigation of flood risk through design.

The FRA must demonstrate how flood risk will be managed for a proposed development, without increasing flood risk to the surrounding areas. Any associated surface water drainage strategy should utilise SuDS, unless there are practicable reasons for not doing so, to ensure the sustainable management of surface water runoff. The council then makes a decision as to whether the development is acceptable based on the evidence provided within the FRA.

City Plan policy 35 sets out that for applications proposing more vulnerable uses within the areas at risk of tidal breach flooding, especially if =within the Rapid Inundation Zone, should prepare a Flood Warning and Evacuation Plan (FWEP) and can be appended to the FRA. A FWEP should set out site specific actions to take in preparation of and during a flood event. Its aim is to reduce risk to life, mitigate damage, and enable a safe and orderly evacuation of site users during a flood. Information that could be contained within a FWEP include:

- Raising awareness of the flood risk to the site;
- Providing information on the Environment Agency Flood Warning Service (if applicable) and flood lead in times;

[19] Flooding and planning application requirements | Westminster City Council

- Detailing how the plan is triggered, who is responsible for participating in the plan, and how to disseminate flood warning information among site users;
- Establishing safe access and egress routes to a safe refuge location;
- Providing information on alternative safe refuge within the site, should evacuation not be possible;
- Establishing procedures for implementing and maintaining the plan.

5.3.2 Standards

As per the requirements outlined in City Plan Policy 35J and policy SI 13 of the London Plan, it is mandatory for all new developments to incorporate SuDS, unless there are substantial practicable reasons for not doing so. The objective of SuDS is to achieve run-off rates like those of greenfield sites and ensure that surface water run-off is managed as close to its origin as feasible. This approach aims to decrease the overall volume of run-off generated, mitigate associated flood risks, and deliver significant additional benefits unrelated to flood risk management.

Additionally, all proposed driveways for new developments should incorporate permeable paving whenever feasible. This is essential to effectively manage surface water run-off. If impermeable materials are proposed for the driveways, obtaining planning permission will be necessary to proceed with the development. Flood Risk Assessments guidance can be found on our website.

Flood Risk Assessment (FRA) For Basement Properties

All basement developments, as defined and set out in policy 45 in the City Plan, located within areas of surface water flood risk areas will also be required to include a site-specific Flood Risk Assessment; Flooding and planning application requirements Westminster City Council. All basements at risk of flooding from surface water must have internal stair access to a higher floor above the design flood level to be utilised in an emergency. Evidence must be provided to support this assessment.

By adopting proactive measures during the planning and design stages allows for the early identification of potential hazards and vulnerabilities associated with the proposed basement development. This assessment helps developers, architects, and planners understand the site's flood history, drainage characteristics, and floodplain information, enabling more informed decisions to minimise risks.

To ensure the safety and resilience of new developments it is strongly encouraged that any proposed basement development, including change of use and; regardless of flood zone category, seek advice and employ a flood risk specialist. While it may not be a statutory requirement, this assessment will help to ensure you understand and mitigate potential flood risks associated with basement dwellings.

With the growing frequency and intensity of extreme weather events, including heavy rainfall and flooding, it is crucial to consider flood risk for basement developments. Basements are particularly vulnerable, categorised as highly vulnerable, due to their lower elevation and often situated below the ground level. Flooding can result in significant damage to properties and pose a risk to occupants- a comprehensive Flood Risk Assessment can help identify appropriate and adequate flood mitigation measures.

5.4 Monitoring

City Plan Key Performance Indicator 20: Applications granted planning permission against Environment Agency advice on flood risk.

6 Energy

6.1 Policy Overview

- National

NPPF Chapter 2- Achieving sustainable development

NPPF Chapter 11- Making effective use of land

NPPF Chapter 12- Achieving well-designed places

NPPF Chapter 14- Meeting the challenge of climate change, flooding and coastal change

- Regional

London Plan

Policy D3 Optimising site capacity through the design-led approach

Policy SI 2 Minimising greenhouse gas emissions

Policy SI 3 Energy infrastructure

Policy SI 4 Managing heat risk

Energy Assessment Guidance 2022- London Authority guidance on preparing energy assessments as part of planning applications (June 2022)

'Be Seen' – Energy Monitoring Guidance

- Local

City Plan Policy 36 Energy

Planning Obligations and Affordable Housing SPD, March 2024 (for carbon off-setting policy & pricing)

Climate Emergency Action Plan, November 2021

Westminster Local Area Energy Plan, September 2024

6.2 Introduction and Guidance

The reduction of carbon dioxide and other greenhouse gas emissions into the air is the central pillar in the council's Climate Emergency declaration, which is targeting a net zero council by 2023 and a net zero Westminster by 2040. This will ensure that we play our part in preventing the increase in global temperatures beyond 1.5 degrees.

The planning system is a key lever for carbon reduction in new buildings, refurbished and retrofitted buildings. The City Plan emphasises the need for energy and carbon reduction and use of low carbon energy sources through Policy 36. This is significant for Westminster as emissions from buildings constitute about 86% of carbon emissions in Westminster overall, followed by road transport (11%) and waste (3%). Recognising this, the council has recently completed a Local Area Energy Plan (LAEP) for Westminster, which sets out data-driven ideal trajectories for retrofit, heat decarbonisation and solar PV that the city should follow in order to make good progress towards the net zero targets.

Ultimately, all buildings in Westminster will need to operate at or near to net zero carbon standards if our Climate Emergency targets are to be achieved. New development represents a clear opportunity to minimise the carbon impact of buildings and design them to meet the standards of a net zero carbon future, through improving energy efficiency, removing fossil fuels from both heating and cooking, and installing renewable energy generation, in line with the LAEP trajectories. Any development that fails to achieve these standards risks becoming a carbon liability that will require remedial action and further investment in the future.

Ongoing maintenance is an effective method of monitoring energy performance of existing buildings. Nevertheless, refurbishment presents a clear opportunity to sensitively upgrade existing buildings to limit their carbon impact – and reduce the contribution of the built environment as a significant source of emissions in Westminster.

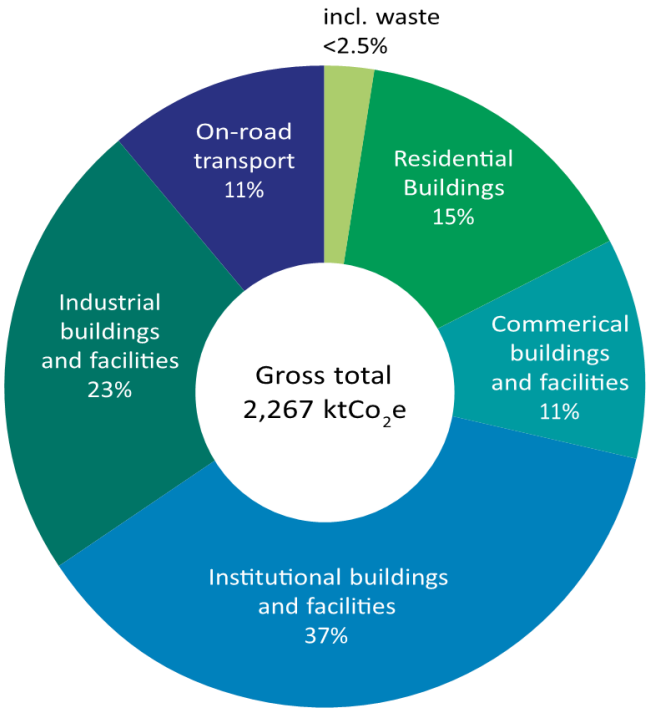


Figure 10: Westminster Carbon Dioxide emissions – 2,267 ktCO₂e (Source SCATTER, 2019)

As well as reducing carbon emissions through the planning system, the council has set out a range of other measures in its Climate Emergency Action Plan. This includes working with residents and businesses to reduce their energy use.

6.2.1 Carbon Emission Factors

The current UK regulatory framework for energy performance in buildings is outlined in Approved Document L of the Building Regulations, which sets distinct standards for different types of buildings.

Volume 1 applies to **dwellings** (residential buildings) and outlines the energy and carbon performance requirements for new and existing residential developments. Compliance is determined using the Standard Assessment Procedure (SAP) - see here.

Volume 2 applies to **buildings other than dwellings** (non-residential buildings) and uses the National Calculation Methodology (NCM) and the Simplified Building Energy Model (SBEM) to assess energy performance.

Currently, SAP calculates carbon emissions for residential developments using Carbon Emission Factors, which are periodically updated to reflect the latest SAP carbon intensity factors based on changes in the carbon intensity of energy supplies. Similarly, for non-residential developments, NCM and SBEM use updated Carbon Emission Factors to estimate energy use and carbon emissions, ensuring that these factors reflect changes in the carbon intensity of fuels.

The Future Homes Standard and the Future Building Standard are expected to be adopted in 2025 along with the Home Energy Model, which will replace the SAP calculation methodology. It is expected that these Standards will significantly enhance the existing Part L requirements.

In line with the government's focus on expanding low-carbon heat networks, Heat Network Zoning is being introduced to identify priority areas where heat networks offer the greatest benefits. New developments within these designated zones will be required to connect to any nearby heat networks, contributing to a more efficient, low-carbon heat supply across the area (see also the section on heat networks in section 8.2.6.2 below). The carbon intensity factor of district heating networks must be provided by the network operator.

For further guidance, please refer to the GLA's Energy Assessment Guidance.

6.2.2 Alternative metrics

In addition to meeting Part L requirements, it is recognised that designing based on absolute metrics, such as energy use intensity in kWh/m²/year, offers a clearer understanding of a development's operational energy performance than percentage improvements over Part L baselines. We encourage developers to incorporate these alternative metrics, as advocated by the London Low Energy Transformation Initiative (LETI), to better reflect a development's energy demands.

Developers may provide calculations on the suggested alternative metrics alongside their Part L calculations, or as an appendix in their submitted energy assessment.

6.2.3 Net Zero Carbon

Policy 36B also requires major development to be net zero carbon and demonstrate this target is achieved. We support the UK Green Building Council's Framework Definition of Net Zero as follows:

Net Zero Carbon: Construction

"When the amount of carbon emissions associated with a building's product and construction stages up to practical completion is zero or negative, through the use of offsets or the net export of on-site renewable energy."

Net Zero Carbon: Operational

"When the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative. A net zero carbon building is highly energy efficient and powered from on-site and/or off-site renewable energy sources, with any remaining carbon balance offset."

Developers aiming for net zero carbon in construction should design the building to enable net zero carbon for operational energy and, where possible, through construction.

Table 10: Energy Assessment on all major development proposals to exceed the minimum onsite performance standards set out in the London Plan (35% improvement on Part L of the Building Regulations 2021).

Building type	Minimum on-site improvement over Part L 2021 (per cent)	Benchmark improvement over Part L 2021 (per cent)
Residential	35 per cent	50 per cent+

6.2.4 Achieving a net zero building: the energy hierarchy

Hierarchies are a useful tool for illustrating the priority placed on interventions to create a sustainable energy approach to development. In line with London Plan and City Plan policy, all developments should seek to reduce onsite energy demand and associated carbon emissions, and maximise low carbon energy sources. The Be Lean, Be Clean, Be Green, Be Seen and Offset approach should be incorporated into the design rationale for buildings and reflected in the energy assessment submitted as part of the planning application.

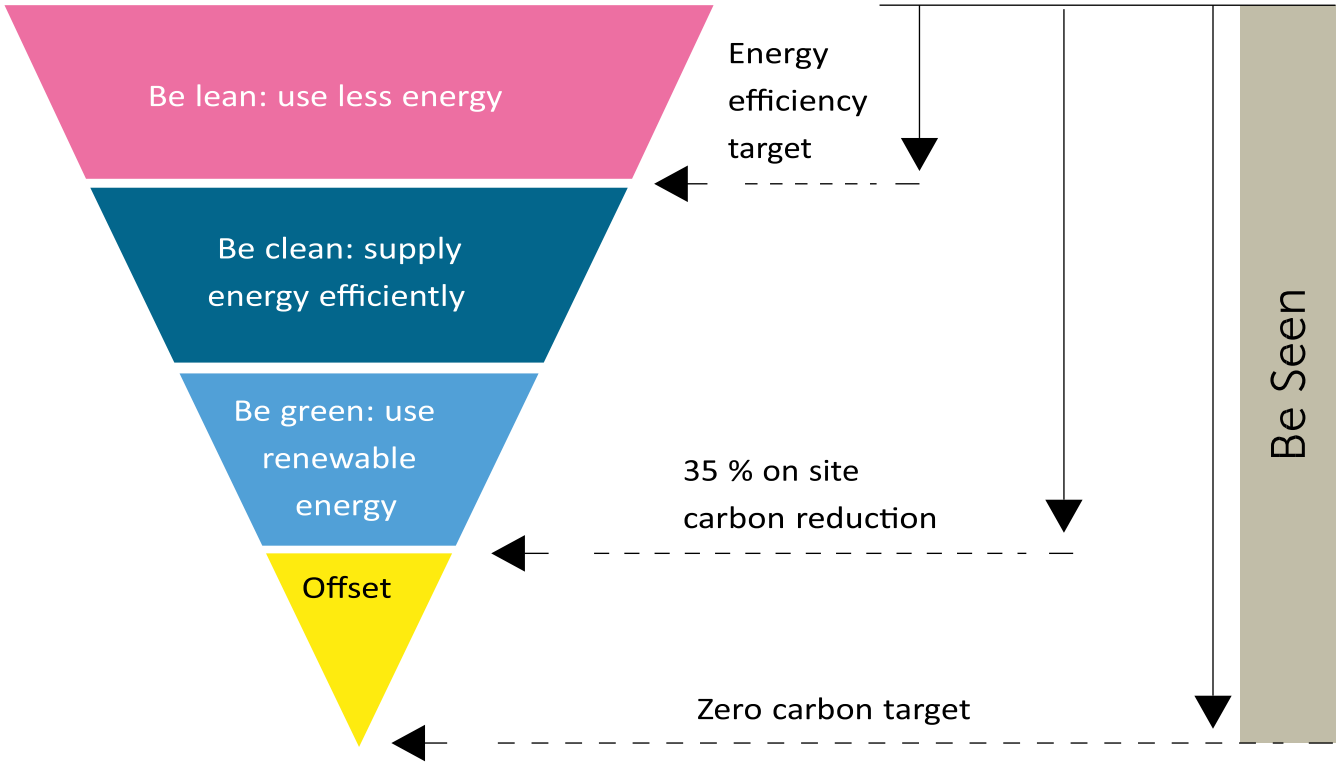


Figure 11: Energy Hierarchy (Source GLA)

6.2.5 Key considerations

BE LEAN: USE LESS ENERGY

All development proposals are expected to minimise operational energy demand and maximise efficient use over all other measures – and before any mechanical systems are utilised. A sustainable design approach should demonstrate how this has been achieved and provide evidence to demonstrate the following approach has been fully considered:

– Using energy use intensity targets (kWh/m^2/year) to better inform your design approach and success criteria for sustainable design;

– Employing passive design principles, including building form, thermal mass, orientation, location, and shading;

– Embracing a 'fabric first' approach, optimising insulation, air tightness and thermal mass to maximise the efficiency of your development. In line with GLA guidance, major residential developments should achieve a minimum 10% improvement on building regulations performance by energy efficiency alone. This increases to a 15% improvement for major non-residential schemes; and

– Using efficient and integrated systems to minimise energy demand from heating, cooling, lighting and ventilation.

Recommended minimum design standards

The Low Energy Transformation Initiative (LETI) Climate Emergency Design Guide[20] sets out recommendations for how new buildings can be designed to meet the UK's climate change targets. The guide provides recommended specifications for different building archetypes including housing and commercial offices.

We support the design recommendations set out in the LETI Design Guide and would encourage new build development to implement the indicative design measures, as summarised in Table 9, wherever feasible and appropriate. Standards for retrofit projects are discussed in the Retrofitting and Sustainable Design chapter. Should a new standard such as the UK Net Zero Carbon Building Standards become more prevalent, applicants would be encouraged to design to meet or exceed these updated requirements in line with evolving best practices.

Table 11: LETI Climate Emergency Design Guide Recommended Standards

	Small scale residential (terraced or semi-detached homes)	Medium scale (up to 4 storeys) and large scale (more than 4 storeys) residential	Commercial offices
Fabric U-Values			
Walls:	0.13 – 0.15	0.13 – 0.15	0.12 – 0.15
Floor:	0.08 – 0.10	0.08 – 0.10	0.10 – 0.12
Roof:	0.10 – 0.12	0.10 – 0.12	0.10 – 0.12

[20] https://www.leti.london/cedg

Windows:	0.80 (triple glazing)	1.00 (triple glazing)	1.00 (triple glazing) 1.20 (double glazing)
Doors:	1.00	1.00	1.2
Efficiency Measures			
Air tightness	<1 (m3/h.m²@50pa)	<1 (m3/h.m²@50pa)	<1 (m3/h.m²@50pa)
Thermal bridging	0.04 (y-value)	0.04 (y-value)	0.04 (y-value)
G-value of glass	0.6 – 0.5	0.6 – 0.5	0.4 – 0.3
Energy Use Intensity	35 kWh/m²/year	35 kWh/m²/year	55 kWh/m²/year
Space heating demand	15 kWh/m²/year	15 kWh/m²/year	15 kWh/m²/year

Passive Solar Design

The design rationale for buildings in the city should, where practicable, maximise the opportunities for natural lighting and the heating of spaces in buildings through conduction, radiation and convection. Despite the physical constraint of many development sites, this design approach is important (particularly for residential use) as it helps to determine the orientation of the building, the type of materials that are used to optimise thermal efficiencies, use of insulation and the size and location of windows, optimising solid to void ratio.

During the cooler months, heating premises through solar design is desirable but it is important to ensure that the same design rationale does not cause overheating during the summer months.

Strategies to consider to passively cool buildings include dual aspect design to allow for windows on opposite facades to create cross ventilation, shading devices like overhangs, brise-soleil, external shutters, awnings, screens and mashes, vertical fins. The incorporation of green infrastructure into developments not only as living walls and roof but tree planting, natural sustainable drainable systems and other spaces also provide a cooling effect on buildings.

Managing Heat Risk

City Plan policy 36 E requires all developments to be designed and operated to minimise the risk of internal overheating. Major development proposals will include a cooling strategy in line with the Mayor of London's cooling hierarchy (London Plan Policy SI4).

Our climate resilient approach to the built environment is not only important for reducing carbon emissions but also for the health and wellbeing of the people that occupy those buildings. Overheating in buildings occurs when people are exposed to high levels of heat for extended periods of time. This can take place not only in existing buildings but also new developments. For vulnerable populations especially older people the results can be fatal. In Westminster we are experiencing hotter summers and the density of development in the city means that the urban heat island effect is experienced in many parts of the city by our communities. Ensuring that existing and future building occupants are familiar with the measures that effectively cool homes will help minimise the risk to people's health.

BE CLEAN: SUPPLY ENERGY EFFICIENTLY

Once energy demand has been minimised, we would expect all developments to demonstrate how they will supply clean energy as efficiently as possible to further reduce their emissions impact. Where possible, developments should aim for all onsite heating, hot water and cooking provision to be fossil fuel-free, prioritising electrified or hybrid heat sources.

Heat Networks

A district heat network is a system where hot water is distributed from a central source to a group of properties via an underground network of insulated pipes, as an alternative to each property having its own central heating. The key benefit this delivers over individual systems is greater overall efficiency coupled with the ability to tap into local waste heat sources such as the Underground, canal water, data centre, electricity substations and the sewer network. These waste heat sources can then be harnessed and topped up with heat pumps.

The Local Area Energy Plan has identified a key role for low-carbon heat networks in decarbonising heat supply for buildings in Westminster in most parts of the borough, with over 130,000 additional buildings projected to connect to heat networks by 2040 as part of the net zero trajectory.

In line with the GLA's energy hierarchy, we currently encourage developments located in the heat network priority areas (Figure 10), to connect to an existing or proposed network bearing in mind that connecting to networks is likely to soon become a requirement in Westminster (see 'heat network zoning' below). We also encourage the creation of new networks, which should use waste heat opportunities and heat pumps; we do not encourage the creation of new gas-fired networks including Combined Heat & Power networks (CHP) due to impact on local air pollution and carbon emissions.

Developers of new heat networks are also encouraged to consider opportunities to incorporate cooling provision into networks in line with recommendations from Westminster's Climate Risk and Vulnerability Assessment. One way of achieving this is through modern 'fifth generation networks', which allow buildings on the network to efficiently exchange heat and coolth depending on their needs, and can store heat and coolth within the ground using boreholes.

The London Heat Map, accessed here, is an open-access mapping tool showing information on existing district heating systems, the relative heat density of different areas, opportunities for connections to 'anchor heat loads' and new and existing network opportunities The map should be used by developers as part of their energy planning to identify potential opportunities for network connections (planned and existing) around their site, and to help identify potential heat loads or supply opportunities.

Developments proposing to deliver or connect to a heat network (either now or in the future) should adhere to the design standards and principles set out in the London Heat Network Manual II (2021), available here.

Heat Network Zoning

From 2025, heat network zoning regulations will be introduced in England. Under zoning legislation, certain areas within cities will be designated as 'heat network zones'. Within these zones, there will be a legal requirement for all new buildings and certain large existing buildings to connect to any nearby new or existing low-carbon networks. A local Zoning Coordinator will also be given new powers through the legislation to enforce the requirement for buildings to connect, using civil sanctions including issuing fines. Whilst not yet officially confirmed, it is very likely that most if not all of Westminster will be designated as a heat network zone by the Government.

Ahead of zoning, the Government has also driven and helped fund the early development of a number of strategic heat networks through its Advanced Zoning Programme. This includes the South Westminster Area Network (SWAN) opportunity area in Westminster, a major heat network project currently undergoing commercialisation. Buildings located within the boundary for SWAN (see Figure 12) are encouraged to consider connection to this proposed network.



Figure 12: Overview of priority heat network areas in Westminster, from the Local Area Energy Plan

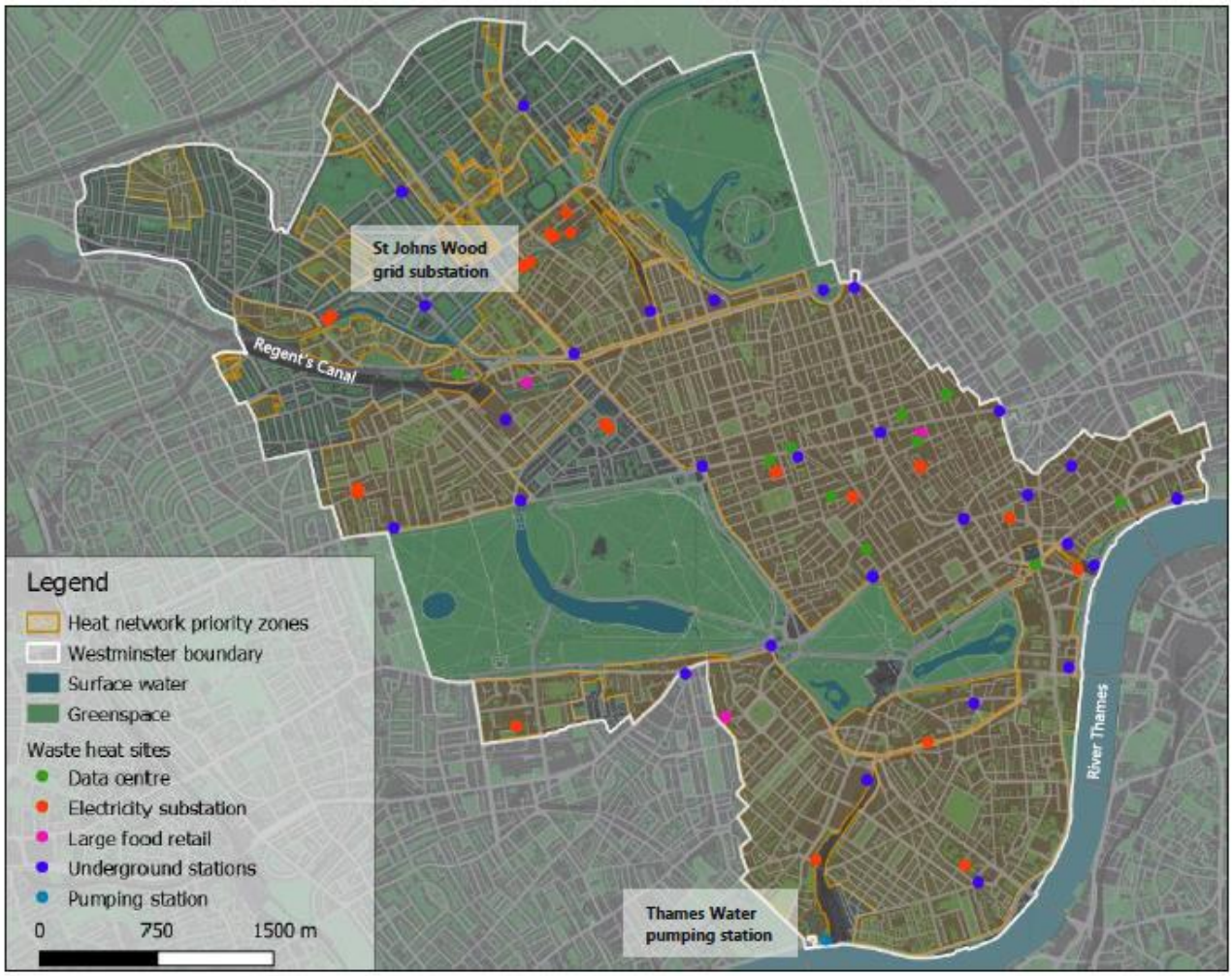


Figure 13: Waste heat sources identified in Westminster, from the Local Area Energy Plan

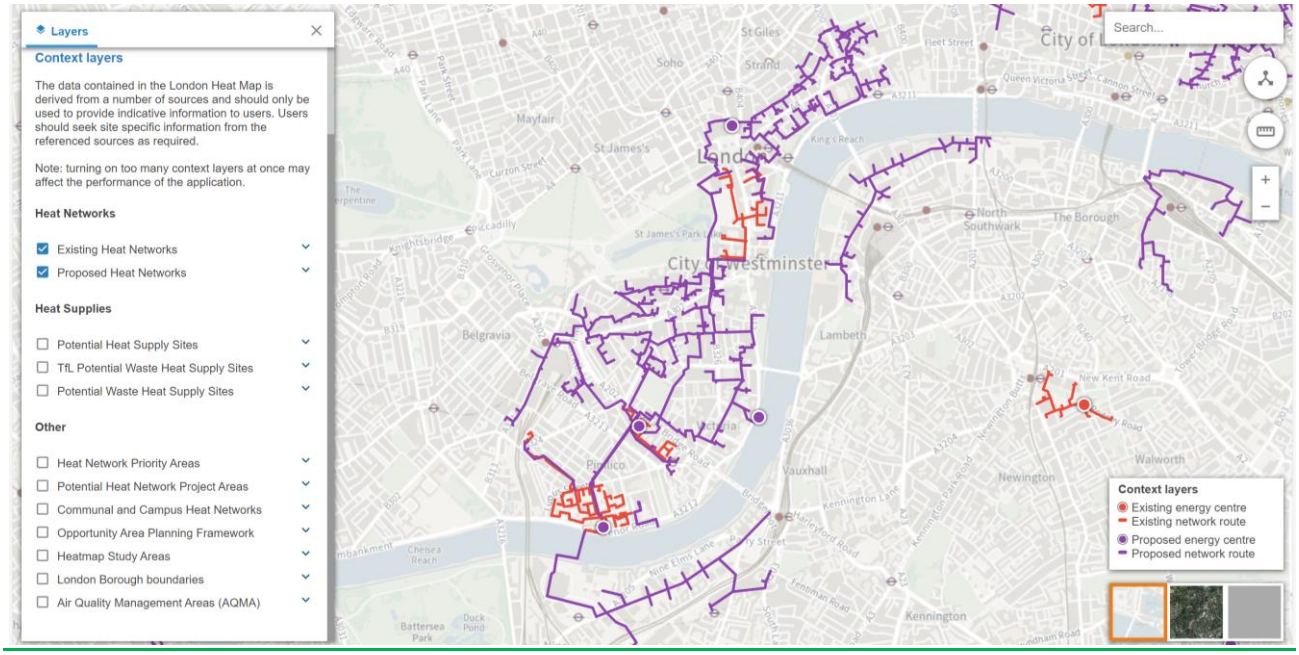


Figure 14: Proposed extent of the South Westminster Area Network (from the London Heat Map)

Outdoor heaters

Outdoor Heaters are popularly used by the hospitality industry and in residential settings to provide warmth in outdoor spaces. When such heaters use fossil fuels these add to further carbon emissions and should be avoided. If outdoor heaters are being considered for use within a development than then only the most sustainable types should be used to help reduce energy consumption. For more information, please refer to the council's licensing webpage.

Site-wide approach to energy

In our housing renewal areas, a site-wide / master planning approach should be taken to energy incorporating the energy, heating and cooling hierarchies. Ensuring that our communities in these areas have access to affordable energy not only when the schemes are built out but beyond requires futureproofed energy infrastructure. Being able to access future changes in technology is key to Westminster's Climate Resilient approach.

BE GREEN: USE LOW AND ZERO CARBON TECHNOLOGIES

Onsite renewable energy generation should be prioritised, with any residual demand for energy met by low and zero carbon sources. We would encourage developers to maximise on-site renewable energy generation, regardless of whether the minimum on-site carbon reduction target has already been achieved, to allow the development to minimise its operational emissions and grid-based energy consumption.

The following are the preferred options for on-site renewable energy systems in Westminster:

Heat Pumps

Heat pumps utilise the difference in temperature between the ground (or the air or water depending on the type) and the room that they are heating. The low temperature heat is transferred through the heap pump to heat the space in the room or building. This low carbon technology can be hugely efficient when integrated into new building especially for example with underfloor heating.

The Local Area Energy Plan sets out which parts of the city are particularly well suited to individual property heat pumps, for both domestic and non-domestic properties. We especially encourage individual property heat pump installation in properties which are less likely to connect to a district heat network in the near future, whether due to being outside of heat network priority areas or due to timing issues with heat network expansion.

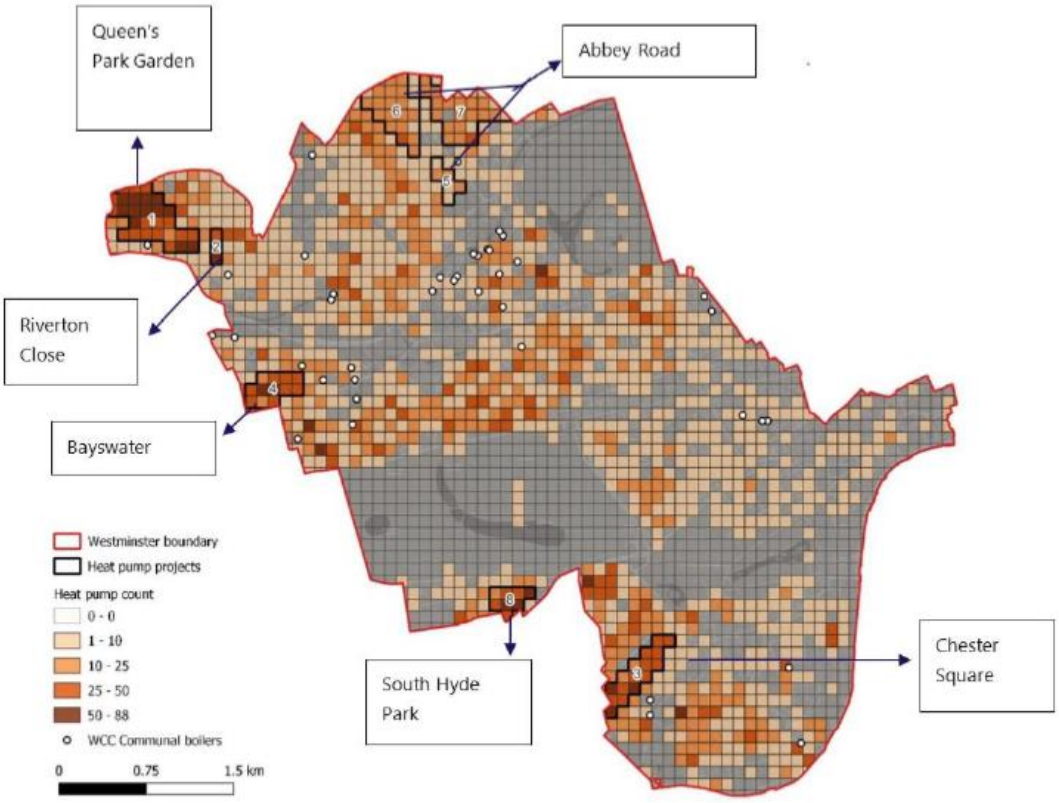


Figure 15: 100m² grid view of domestic properties more suitable for property-level heat pumps, showing some potential focus areas. See the LAEP for further information.

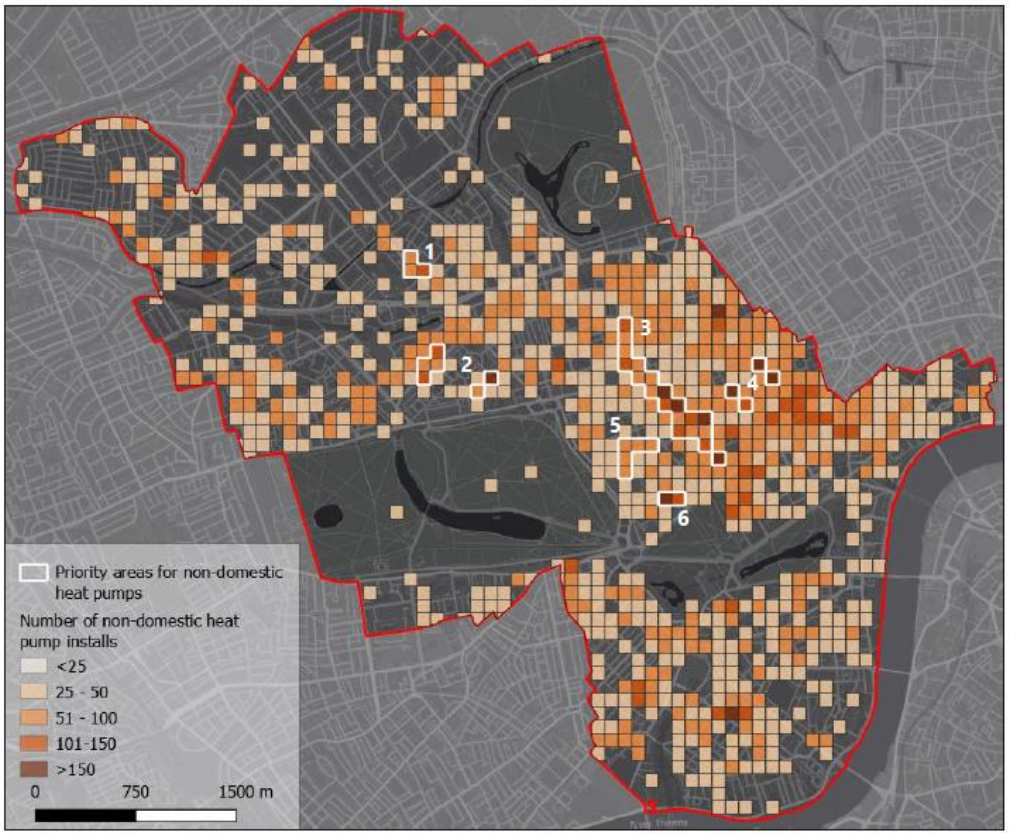


Figure 16: 100m² grid view of non-domestic properties more suitable for property-level heat pumps, showing some potential focus areas; see the LAEP for further information

As part of a refurbishment or retrofit scheme the scale and integration of heat pumps into existing townscape needs to be handled sensitively, taking into account outdoor condenser units which some heat pumps utilise, and the potential for noise pollution. Heat pumps need to be accessible for maintenance and so retrofitting into high-rise blocks will require internal units or a suitable balcony, roof or communal area nearby.

Heat pumps are permitted development, meaning they don't need planning permission, providing they meet certain conditions[21]. Heat pumps which do not meet these criteria will need planning permission before installation. This includes limits for installations to listed buildings, and within conservation areas and the World Heritage Site. Further information can be found in the Retrofitting and Sustainable Design section of this SPD and Air source heat pumps | Westminster City Council .

Solar Technologies (Solar Thermal and Solar PV)

Where overshadowing can be avoided, solar energy can represent an effective renewable technology to be used in Westminster. Solar can be used to generate electricity (solar photovoltaics) or to heat water (solar thermal) in a building. There is an extensive range of panels available (including solar slates) with a variety of colours, thicknesses and glazing options available and visual impacts can be mitigated through siting and design.

In accordance with paragraph 9.2.3 of London Plan Policy SI 2 (Minimising greenhouse gas emissions), Westminster seeks to ensure that all developments maximise opportunities for on-site electricity and heat production from solar technologies (photovoltaic and thermal) and use innovative building materials and smart technologies. This approach will reduce carbon emissions, reduce energy costs to occupants, improve London's energy resilience and support the growth of green jobs.

Opportunities to incorporate solar technologies may be reduced in some instances in sensitive locations on listed buildings and in conservation areas, however the council strongly advocates such technologies and wants to work with applicants to find the best solution, which can be discussed at pre-application stage. As a general principle the aesthetics of solar technologies are appropriate within the city and they can be installed in conjunction with green roofs to maximise climate resilience on sites. See the Retrofitting and Sustainable Design section of this ESPD for guidance on installing solar technologies on existing buildings, including heritage assets and Solar panels | Westminster City Council.

The Local Area Energy Plan sets out priority areas for solar PV deployment in Westminster (see Figure 15). The map identifies locations where there is a higher rooftop solar capacity, combined with having an electricity substation with a summer seasonal constraint; this means that solar PV can help balance out demand on the electricity grid during summer months. Solar PV deployment is encouraged in all parts of Westminster, but especially within these areas.

[21] Further information on Permitted Development criteria for heat pumps can be found on the Planning Portal website

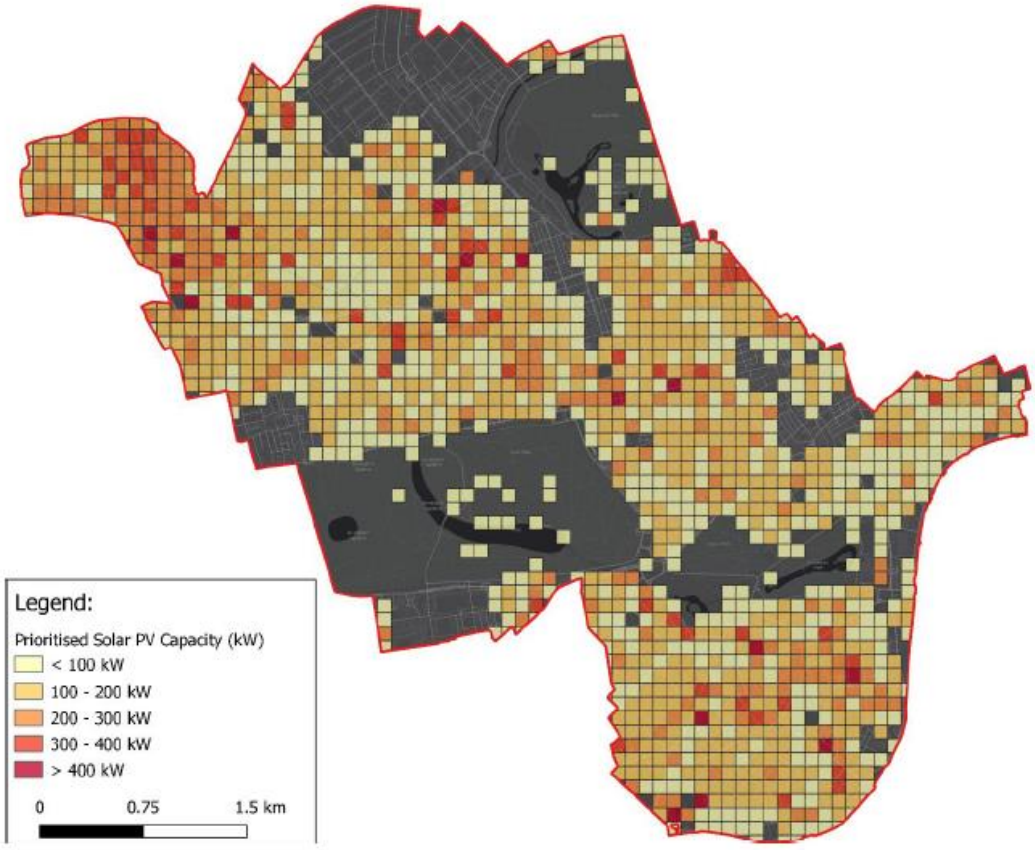


Figure 17: 100m² grid view of solar PV capacity, in areas where substations have a summer seasonal constraint

Offsetting

Carbon offset payments are collected as a last resort when residual carbon emission performance in a proposed development cannot be achieved on site through the Be Lean Be Clean and Be Green approach. It is set at a level that reflects the cost of addressing the residual emissions.

As part of the energy statement submitted to support a planning application, the tonnes of carbon that are not mitigated should be offset in accordance with the GLA's methodology.

The cost of carbon is detailed in the council's Planning Obligations and Affordable Housing SPD and in the council's carbon offset guide, found here. The council's carbon offset guide sets out the how the offset price is calculated, the current cost of carbon and how the carbon offset fund will be spent in the city. The council will regularly review and update the local cost of carbon.

Westminster's carbon offset funds are managed in accordance with the existing processes for allocating planning obligations.

BE SEEN: MONITORING AND MEASURING

The actual energy use of a building once occupied is just as important as the planning for energy supply and use prior to development taking place. This will determine how much of the planned energy savings have been realised and the direct contribution the building makes to tackling climate change in reality.

It is well established that a performance gap exists between predictions of energy consumption from building compliance tools determined at the development design stage and the actual measured energy use of a development once completed and occupied. To achieve net zero-carbon buildings we will need to better understand their in-use performance so that we can address and reduce the performance gap

moving forwards. Ensuring a development operates as designed is also an important consideration in safeguarding the wellbeing and financial implications for building users.

The GLA have produced 'Be Seen' Guidance which sets out requirements for post-construction monitoring (to align with London Plan policy SI2). The purpose of the 'be seen' policy is to better understand the performance gap between design and actual performance. The guidance states that reporting requirements should be secured through a Section 106 agreement and a template is provided alongside the guidance. Further guidance provided if required in the council's Planning Obligations and Affordable Housing SPD. The 'Be Seen' guidance can be viewed here.

The 'Be Seen' energy reporting requirement applies to major developments. However, provision of energy monitoring data is essential to understanding this and we therefore encourage all developers to submit this information to the council post-occupation to understand how the building is being used compared to projections at application stage and what can be learnt for future developments. Collection of this data over time will also help to create a city-wide picture of energy usage to inform strategic decisions.

6.3 Development Requirements

6.3.1 Information

ENERGY ASSESSMENTS

Major development proposals, including shell and core schemes, should include a detailed energy assessment to demonstrate how energy use and carbon emissions have been reduced for the development in accordance with policy requirements, and that energy use and its reduction have been a central consideration in the development's design and evolution.

An energy assessment may be submitted as part of the Sustainability Statement or as a standalone assessment. The energy assessment should adhere to the format and guidance set out in the GLA's Energy Assessment Guidance 2022. As a minimum, energy assessments should:

- Calculate baseline energy demand and CO_2 emissions, showing the contribution of emissions from both regulated and unregulated uses;
- Demonstrate how onsite energy demand and emissions have been addressed in accordance with the energy and cooling hierarchies approach;
- Indicate the design considerations and rationale behind the preferred approach; and
- Calculate the final energy and carbon performance of the development, and any carbon offset contributions to address residual shortfall, as necessary.

WHOLE LIFE CARBON

The consideration of whole life carbon is important in understanding the role of operational emissions and how these contribute to the overall carbon footprint of a development. Where Whole Life Carbon (WLC) Assessments are required for developments referable to the Mayor of London, and major developments involving substantial demolition[22], this should follow the RICS Professional Standard on Whole Life Carbon Assessment, 2nd edition. For further information, see ESPD section on Sustainable Design.

In line with this RICS Professional Standard and in recognition of the fact that there is no standard methodology for calculating operational energy within the context of WLC assessments, operational energy should be reported separately and described in depth within either an Energy Statement or Sustainable Design Statement.

6.3.2 Standards

ENERGY ASSESSMENTS

Major Residential Developments

Overall Carbon Reduction Target: Developments must achieve a minimum 35% reduction in carbon emissions compared to the Part L 2021 baseline. This reduction should come from the application of energy-saving measures and low-carbon technologies.

Energy Efficiency Target: At least 10% of the carbon reduction must be achieved through energy efficiency measures alone, such as improved building fabric (insulation, air-tightness) and efficient building services like heating, ventilation, and cooling.

[22] Substantial demolition is defined as being the demolition of more than 50% of the floor slabs and substructure of any pre-existing building.

SAP Compliance Reports: Submit 'as designed' SAP compliance reports, which include detailed calculations showing compliance with the energy efficiency requirements. The reports should cover the Dwelling Emission Rate (DER) and the Target Emission Rate (TER), as well as the energy hierarchy steps (Be Lean, Be Clean, Be Green).

Low or Zero-Carbon Technologies: Provide supporting evidence on the selection and specification of low or zero-carbon technologies (e.g., renewable energy systems, heat pumps) through system specifications, design plans, and performance data.

Carbon Offset Calculation: If the on-site measures do not fully meet the carbon reduction target, applicants must calculate the carbon offset contribution required to mitigate any remaining emissions.

Major Non-Residential Developments

Overall Carbon Reduction Target: Developments must achieve a minimum 35% improvement in carbon emissions compared to Part L 2021 baseline standards for non-residential buildings.

Energy Efficiency Target: A minimum of 15% of the overall reduction must come from energy efficiency measures alone. This includes improvements to the building envelope, energy-efficient lighting, heating, and cooling systems.

BRUKL Compliance Reports: Submit 'as designed' BRUKL compliance reports (Building Regulations UK Part L), which show compliance with Part L requirements through Building Emission Rate (BER) and Target Emission Rate (TER) calculations.

Low or Zero-Carbon Technologies: Similar to residential developments, non-residential projects must provide evidence of the selection and specification of low or zero-carbon technologies. This may include system designs, roof layouts, and seasonal performance data.

Both types of developments are expected to incorporate these energy efficiency measures and use the appropriate assessment methodologies to ensure compliance with Part L and the broader sustainability goals of reducing carbon emissions in the built environment.

Decentralised Energy Proposals

Any development proposing to utilise or connect to a decentralised heat network, must demonstrate compliance with the technical standards set out in Appendix 1 of the London Heat Network Manual. The following evidence will need to be provided:

- Information on the proposed heating system, including datasheets and plans confirming the proposed heating system specification
- A scale drawing of the proposed plant room and layout, including space requirements for heat exchangers.
- Confirmation of the proposed plant room specification

All developments in heat network opportunity areas are currently encouraged to connect to an existing heat network. Where this is not considered viable robust justification must be provided and the development should be designed so as to enable future connection to a district heating network. See also Heat Network Zoning incoming regulations on page 82.

Offsetting Fund

Westminster City Council's methodology and approach to calculating carbon offset contributions is set out in the council's carbon offset guide, found **here**. Further guidance is detailed in the council's Planning Obligations and Affordable Housing SPD.

Pre-occupation

It is expected that major developments install appropriate monitoring equipment to demonstrate on-going effective energy monitoring and management over the lifetime of the development.

6.4 MONITORING

City Plan Key Performance Indicator 19: Applications that include renewable technologies

City Plan Key Performance Indicator 22: Reduction of carbon dioxide emissions (total end user and per capita) by local authority area, as reported by Department of Business Environment and Industrial Strategy (BEIS)

London Plan 'Be Seen' – monitor, verify and report on energy performance for major developments

7 Waste Management

7.1 Policy Overview

- National

NPPF Chapter 14 - Meeting the challenge of climate change, flooding and coastal change

NPPF Chapter 15 - Conserving and enhancing the natural environment

National Planning Policy for Waste (2014)

- Regional

London Plan Policy SI 7 Reducing waste and supporting the circular economy

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

- Local

City Plan Policy 37 Waste Management

Municipal Waste Management Strategy 2016 – 2031

Recycling and Waste Storage Requirements

7.2 Introduction and Guidance

Waste in Westminster is generated mainly from municipal waste (from households, businesses, and institutions) and practises of demolition and construction waste. The council has a number of different roles and responsibilities related to waste[23]. City Plan policy 37 and this ESPD relates to the council's role as a waste planning authority. Historically this would primarily include operational waste planning and ensuring waste storage is incorporated into new developments. As we move towards regenerative practices of development, the guidance within this ESPD emphasises the additional processes needed to tackle construction waste and to fully support the circular economy. Westminster City Council is fully supportive of reuse platforms, such as the Excess Materials Exchange where the deconstruction and identified to be of value are advertised for reuse. All other materials identified to be of lesser value are expected to be taken offsite and re-manufactured, with recycling being the last resort.

This ESPD should be read in conjunction with the council's Code of Construction Practice and Municipal Waste Management Strategy (2016-31) through which we are aiming to achieve a 65% recycling target of municipal waste by 2030. This strategy is likely to be updated before 2030 and developers should check our website to ensure the latest version is being referred to. To allow residents and businesses the opportunity to avoid end of life disposal of their waste, increase recycling and environmental performance, the city council offers separate collections for dry recycling, and food waste and aims to encourage consumers to reduce the volume of non-recyclable waste produced by Westminster households and businesses to avoid the negative consequences of having to process and transport so much waste in the first place. For example, the Pimlico Library of Things is a great way encouraging circular consumption model, while reducing household waste. The Council would support incorporating storage and exchange facilities for re-use of things, including construction materials, within developments, preferably within envelopes of main buildings.

We will also provide visitors and tourists the opportunity to recycle on the go through segregated street litter bins. The government's Resources and Waste Strategy will bring changes to the way waste is managed in Westminster. The city council will work with residents, businesses and stakeholders to accommodate these changes.

Implementing the waste hierarchy and promoting circular economy principles is key to reducing the amount of waste produced and ensuring that more materials are reused, repaired and recycled.

7.2.1 Waste Hierarchy

The waste hierarchy is a framework for securing a sustainable approach to waste management. It gives top priority to preventing waste in the first place. When waste is created, it gives priority to re-use, then recycling, then recovery, and last of all disposal (e.g. waste to energy). Most of the legislative drivers for reducing waste, ensuring products can be repaired and promoting recycled materials come from central government and are outside the remit of the planning system. However, the council expects development to implement the waste hierarchy by ensuring that 95% of construction and demolition waste is reused, recycled or recovered (through Site Waste Management Plans / Code of Construction Practice), and providing sufficient space for the separate storage of construction materials (whenever possible) as well as dry recycling, food waste and residual waste in residential and commercial buildings.

[23] Further information on Westminster's waste collection and disposal functions can be found on the council's website.

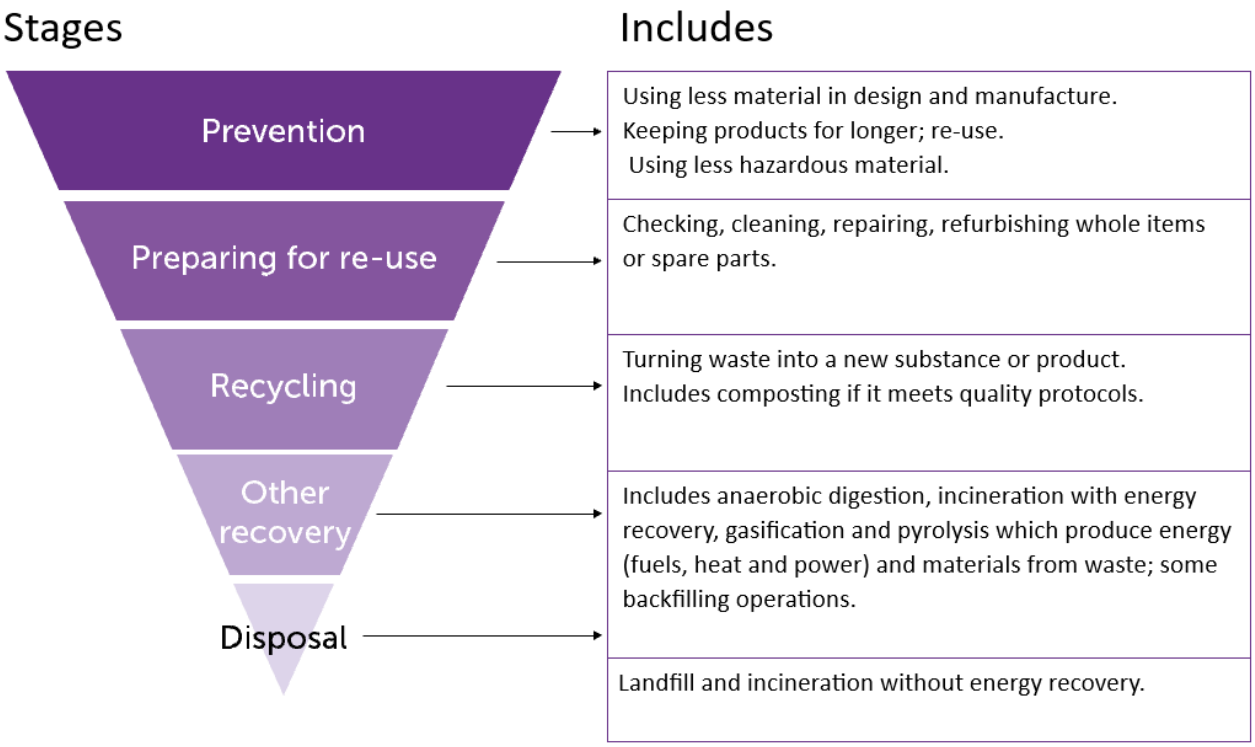


Figure 18: Waste management hierarchy

7.2.2 Circular Economy

As we move to a resource efficient Westminster, we will be looking for opportunities to move from a linear to a circular economy. The Circular Economy is described by the London Plan as '*An economic model in which resources are kept in use at the highest level possible for as long as possible in order to maximise value and reduce waste, moving away from the traditional linear economic model of 'make, use, dispose'*. City Plan policy aims to contribute to the London Plan targets for recycling and for London's net self-sufficiency by 2026.

To showcase best practice, Westminster City Council have recently completed a successful trial on one of its own developments – Ebury Bridge, where a concrete sample was taken offsite, crushed, and brought back to cast a 100% recycled concrete non-bearing landscape feature. This goes beyond the current 20% recycled aggregate mix and shows the true potential of technology to be scaled up and deliver greater circularity for concrete structures.

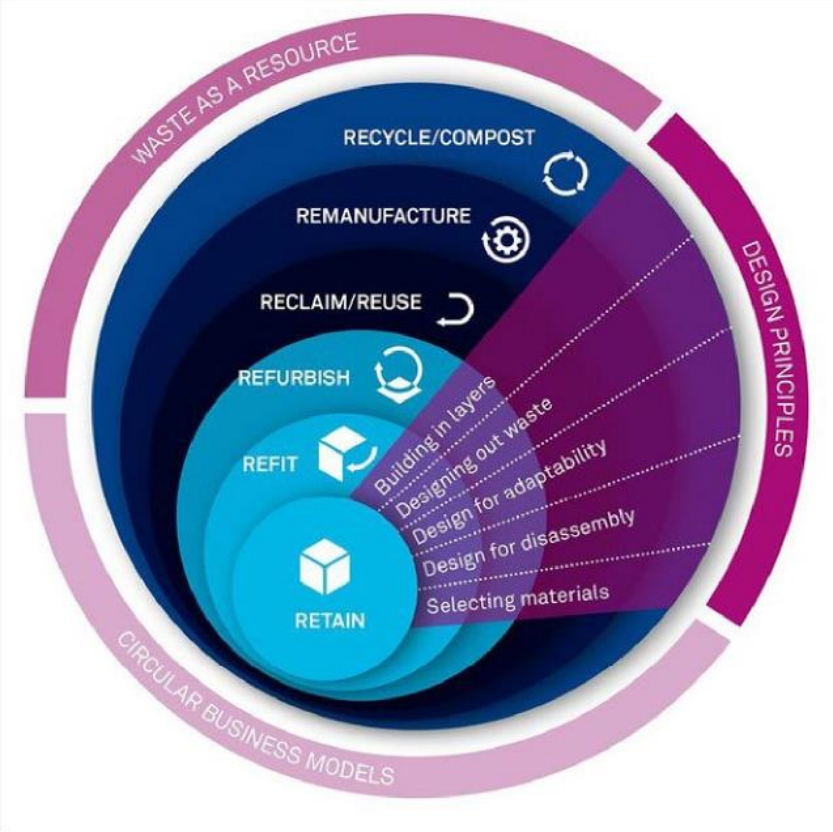


Figure 19: Circular economy hierarchy for building approaches (Source GLA)

Putting the circular economy into action in Westminster's built environment means in the first instance exploring retention and refurbishment of buildings rather than demolition and re-build. If this is not possible, then incorporating reused materials into a new development.

In the linear economic model, the intrinsic value of products and materials reduce over the life of the building. By moving to a circular economy approach, both buildings and their component parts retain their intrinsic value when they are reused and retained.

The council is committed to promoting the Circular Economy. Major development planning applications referable to the Mayor must include a Circular Economy Statement which demonstrates how circular economy principles have been embedded into the design. The council encourages all major applications, and any non-major applications involving demolition to prepare Circular Economy Statements.

There are links between Circular Economy Statements and Whole Life Carbon (WLC) Assessments. In Westminster, to align with our climate priorities and City Plan Policy 38 D.3 on sustainable development, all applications referable to the Mayor of London and major developments which include substantial demolition[3] are required to prepare WLC Assessments in accordance with the RICS Professional Standard Whole Life Carbon Assessment 2nd Edition. Using this methodology, the outcomes of the WLC Assessment should meet either the requirements of the London Plan, the emerging UK Net Zero Carbon Building Standard and/or any Westminster specific requirements set in the future with regards to whole life carbon emissions of buildings. Advice on which requirements development will need to adhere to will be confirmed on a case by case basis. See the ESPD section on Sustainable Design for more details.

Westminster is part of a wider emerging network for construction materials reuse, encouraging contractors to sign up and use the Excess Material Exchange platform, while exploring opportunities for materials storage across the region.

7.3 Development Requirements

7.3.1 Information

CIRCULAR ECONOMY STATEMENTS

Policy 37 C, Waste Management requires developers to submit a Circular Economy Statement, Site Environment Management Plan and/or associated Site Waste Management Plan. Circular Economy Statements should be submitted for referable applications in line with London Plan policy SI 7 to demonstrate how construction, demolition and excavation (CD&E) recycling and beneficial use targets will be met. Compliance with the Council's Code of Construction Practice should also be shown.

A Circular Economy Statement is required for referable applications and should demonstrate:

1. How all materials arising from demolition and remediation works will be re-used and/or recycled. Setting up clear benchmarks for each building layer and the maximum amount of recoverable materials by volume.
2. How the proposal's design and construction will reduce material demands and enable building materials, components and products to be disassembled and re-used at the end of their useful life. Signing up for the Excess Material Exchange is encouraged. Each building element and its careful deconstruction requires processes to be captured within the demolition programme to avoid delay and increase in cost.
3. Opportunities for managing as much waste as possible on-site. Early pre-demolition audits, done across various deconstruction stages, and in liaison with the architectural design team, preferably in early brief setting, leads to the highest amount of direct reuse.
4. Adequate and easily accessible storage space and collection systems to support operational use recycling.
5. How much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy.
6. How performance will be monitored and reported. (London Plan).

WASTE MANAGEMENT PLANS OR STRATEGIES

In major residential or commercial developments, a waste management plan or strategy must be submitted. This can be a separate document or can be covered in the Design and Access Statement. Where an existing area-wide or estate-wide strategy is in place for the consolidation of storage and collection of waste, this will be considered by the council when assessing the suitability of the applicant's proposed approach to waste.

The waste management plan or strategy should indicate:

- estimated volumes and types of waste produced by the development;
- the size and location of waste and recycling stores and how recyclable material and other waste would be delivered to these stores;
- the equipment specified for compacting and/or containing waste;
- the management of biodegradable material (a composter may be required); and,
- the proposed collection point as well as the method for transferring waste to this location.

A waste route diagram should be included showing transfer of waste within the development to the waste store and transfer of waste from the waste store to the collection point. The route from a waste storage area to the nearest parking place for a waste collection vehicle must be kept to a minimum, particularly if bulk waste storage containers or compactors are proposed.

Applicants should seek pre-application advice concerning the type, size and location of the proposed waste storage accommodation. This SPD provides basic advice on the storage requirements for waste and recyclable materials that may be helpful in early stages of the design process.

ON SITE OPERATIONAL WASTE STORAGE

This provision of waste storage must be clearly marked on the relevant plans submitted with the planning application, e.g. containers for waste marked 'W', those for recycling marked 'R' and those for organic waste marked 'O'. Where large amounts of waste would be generated a waste compactor and/or cardboard baler may be required (note: comingled recyclables cannot be compacted). The storage locations of the cardboard baler, compactor, food waste facilities and waste cooking oil must be indicated on the plans. Wash down and drainage facilities are also necessary to meet required hygiene standards.

7.3.2 Standards

WASTE STORAGE

To comply with City Plan policy 37 B and London Plan policy SI7 A6, when a planning application is submitted, the council will expect details to be specified and agreed of adequate, flexible, and easily accessible operational waste storage space and collection systems that supports the separate collection of dry recyclables, food waste and residual waste. This includes space for storing bulky items and reusable goods in residential accommodation. This requirement is essential for the following types of application:

- New developments
- Residential conversions
- Major extensions to existing buildings
- Redevelopments
- Changes of use that require planning permission and significantly change the amount of waste generated on-site, especially those providing hospitality services.

Further waste storage planning advice can be found in the council's Recycling and Waste Storage Requirements guidance.

The Government reconfigured the Use Classes within which different uses are classified in September 2020. There are now 4 Use Classes, Classes B, C, E and F. Other uses not included in these Use Classes are described as sui generis uses. Different uses will require different storage types and capacities. Applicants should use the appropriate waste storage calculation detailed in the waste and recycling storage requirements that best suit the nature of the development. When considering the amount of storage space needed for any development the following requirements would help to calculate the volume of waste generated. They should only be taken as a guide, since some developments such as B2, B8, F uses, and sui generis may need customised storage requirements depending on the scale and the frequency of use.

Permission will not normally be granted in advance of submission of details indicating satisfactory storage arrangements. However, in exceptional circumstances it may be considered appropriate to reserve details of the waste storage accommodation, for approval prior to commencement of construction.

All residential dwellings must have storage space for seven days' output of waste. At least 60% of the storage capacity should be for recyclable material if using communal waste storage. Please note that chute systems are not permitted as their use for dry mixed recyclables has not demonstrated the quality required of these materials for reprocessing.

WASTE STORE SIZE

The waste store should be sized to accommodate additional recycling containers as may be required in the foreseeable future. In developments with mixed residential and commercial units, the residential dwellings would be required to have seven days' storage.

Commercial collection service, for non-residential uses, is a charged service that can only be provided by a licensed waste contractor, such as the council, who need to be contracted to perform the collection service. The council only has a duty to collect residential waste and recyclables (covered by the Residential Council Tax). For commercial developments in areas where the City Council's collection service is:

- Daily- provision must be made for at least two days output of waste.
- Three times a week, or less- provision must be made for at least four days' output of waste.

The council is aware of the need for additional waste storage for businesses in Westminster and is seeking solutions. New development is encouraged to include additional on-site waste storage space for other businesses in the area.

Clinical Waste

In all applications where clinical waste will be produced (medical, dental, cosmetic, residential care home, nursing homes, and veterinary establishments, etc.), separate storage and collection arrangements will be required for clinical and non-clinical waste. A separate waste store must be provided exclusively for clinical waste, which must be secured and locked. The clinical waste store should be provided with an impermeable surface with a sealed drainage system or within sealed containers located on an impermeable surface with a sealed drainage system. Sealed containers shall be kept locked when not being loaded or unloaded. A waste permit may be required from the Environment Agency to store clinical waste on site, please refer to the Environment Agency guidance on storage of clinical waste for further information. The Department of Health guidance on the safe management of healthcare waste should also be referred to.

Recycling

It normally costs less to recycle waste and proposed waste management systems should therefore be designed to maximise recycling. To do this, major developments (both residential and commercial) should have a minimum of one waste management operative on full time or part time basis to ensure proper segregation dry recyclables, food waste and residual (non-recyclable).

Waste Equipment

Major developments should have the following waste equipment or facility where relevant.

- Food waste facilities (if the development includes restaurants)
- Cardboard balers
- Compactors (only general waste should be compacted)
- Public Micro Recycling Centre (Bring Banks)

7.4 Monitoring

City Plan Key Performance Indicator 28: Capacity of new waste and recycling facilities

City Plan Key Performance Indicator 29: Amount, type and destination of waste exported from Westminster

8 Sustainable Design

8.1 Policy and Guidance Overview

- National

NPPF Chapter 2- Achieving sustainable development

NPPF Chapter 11- Making effective use of land

NPPF Chapter 12- Achieving well-designed placesNPPF Chapter 14- Meeting the challenge of climate change, flooding and coastal change

NPPF Chapter 15- Conserving and enhancing the natural environment Regional

London Plan Policy SI 2 Minimising greenhouse gas emissions

London Plan Policy SI 4 Managing heat risk

London Plan Policy SI 7 Reducing waste and supporting the circular economy

London Plan Policy SI 5 Water Infrastructure

- Local

City Plan Policy 36: Energy

City Plan Policy 37: Waste Management

City Plan Policy 38: Design Principles

8.2 Introduction and Guidance

This chapter includes sustainable design principles for both existing and new buildings. The overarching sustainable design principles in City Plan policy 38D seek to ensure that all development, including both new build and existing buildings, is designed to be durable, adaptable and limit resource use now and into the future, including water and energy consumption, with features to mitigate and adapt to climate change integrated in development design from the outset. Guidance on designing for sustainability cuts across a number of topics and is included in a range of chapters in this SPD, in addition to the guidance set out in this chapter.

New build projects will need to meet key sustainability standards to be acceptable in planning terms, including energy and water efficiency, as detailed in the City Plan, London Plan and elsewhere in this SPD. In addition to this, proposals should demonstrate that the approach to development has considered options which enable the extended lifetime of buildings.

Refurbishment and retrofit projects provide an important opportunity to improve the energy and water efficiency of existing buildings and to reduce emissions, which is key to achieving carbon neutrality by 2040 and to address water stress in the capital. Furthermore, the refurbishment and retrofit of existing buildings can reduce carbon emissions associated with demolition and new buildings. This means that existing buildings can remain in-use and adaptable to modern needs, including climate change adaptations. Further details specific to retrofitting are included in the ESPD section on Retrofit.

8.2.1 Sustainable design principles

As set out in City Plan Policy 38D, applicants are required to demonstrate how sustainable design principles and measures have been incorporated into development proposals. Key to this is the demonstration of how development will enable the extended lifetime of buildings and spaces, while responding to the likely risks and consequences of climate change. Therefore, upholding sustainable design principles should:

- Prioritise the retention, retrofit and refurbishment of existing buildings wherever possible
- Consider whole life carbon impacts, including embodied carbon emissions
- Take a whole building approach to considering interventions which might improve the resource efficiency of buildings, adhering to any industry performance standards and improving resilience and adaptability to climate change.

8.2.2 Prioritising the retention of buildings

Incorporating sustainable design principles assist with ensuring that buildings in Westminster are sustainable not only in operation, but also as they are being built. This therefore considers the role of upfront embodied carbon emissions, with proposals that refurbish or retrofit existing buildings effectively re-using carbon intensive building elements such as superstructure or substructure. By re-using these building elements rather than constructing them with new building materials, the whole life carbon of a building can be greatly reduced.

The London Plan Guidance on Circular Economy Statements includes a decision tree for design approaches to existing buildings. This is re-produced in this SPD to provide an overview of the hierarchy of preferred development types, and steps which should be taken to ensure that sustainable design principles are embedded in early project decision making.

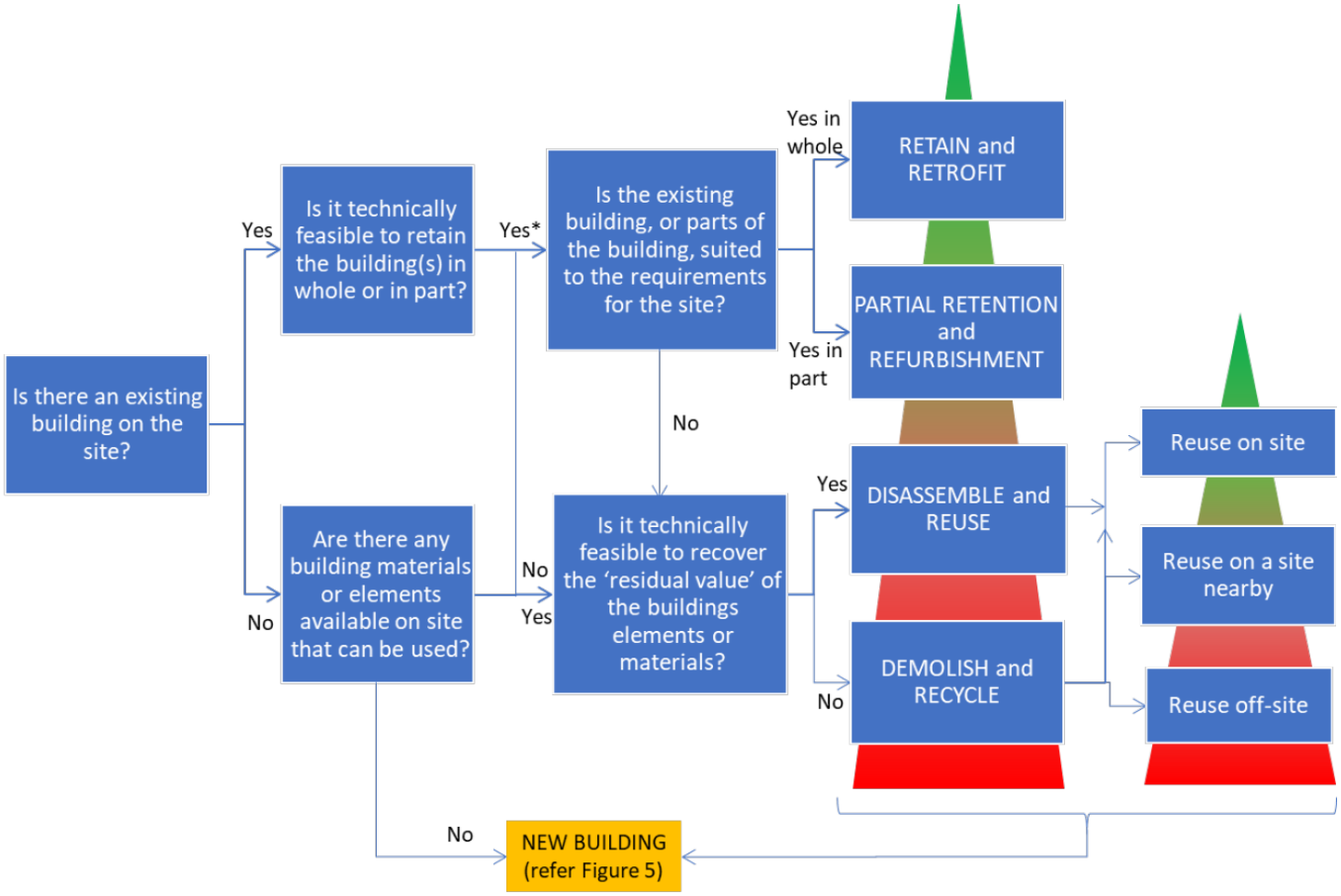


Figure 20: Decision tree for design approaches for existing buildings (Source: Reproduced from London Plan Guidance on Circular Economy Statements. Note reference to Figure 5 from the London Plan Guidance is recreated as Figure 21 below)

All proposals should consider:

- How existing buildings can have their lifetimes extended first, with the possibility of sensitively refurbishing or retrofitting buildings considered prior to demolition.
- How any retrofit or refurbishment measures could enhance an existing building's ability to respond to the risks and consequences of climate change.
- How development can embed circular economy principles.

As set out within the Westminster Circular Economy and Whole Life Carbon Checklist, to demonstrate the consideration of the points listed above, all schemes are encouraged to prepare a Pre-Demolition Audit presenting information on the following:

- Existing condition of the building, including technical characteristics
- Building dimensions
- Existing material quantities, along with all materials identified as having high-value reuse potential
- Environmental impact of existing building(s) (including the embodied carbon of all known existing materials)
- Disassembly recommendations, storage recommendations, upcycling opportunities via suppliers or remanufacture recommendations

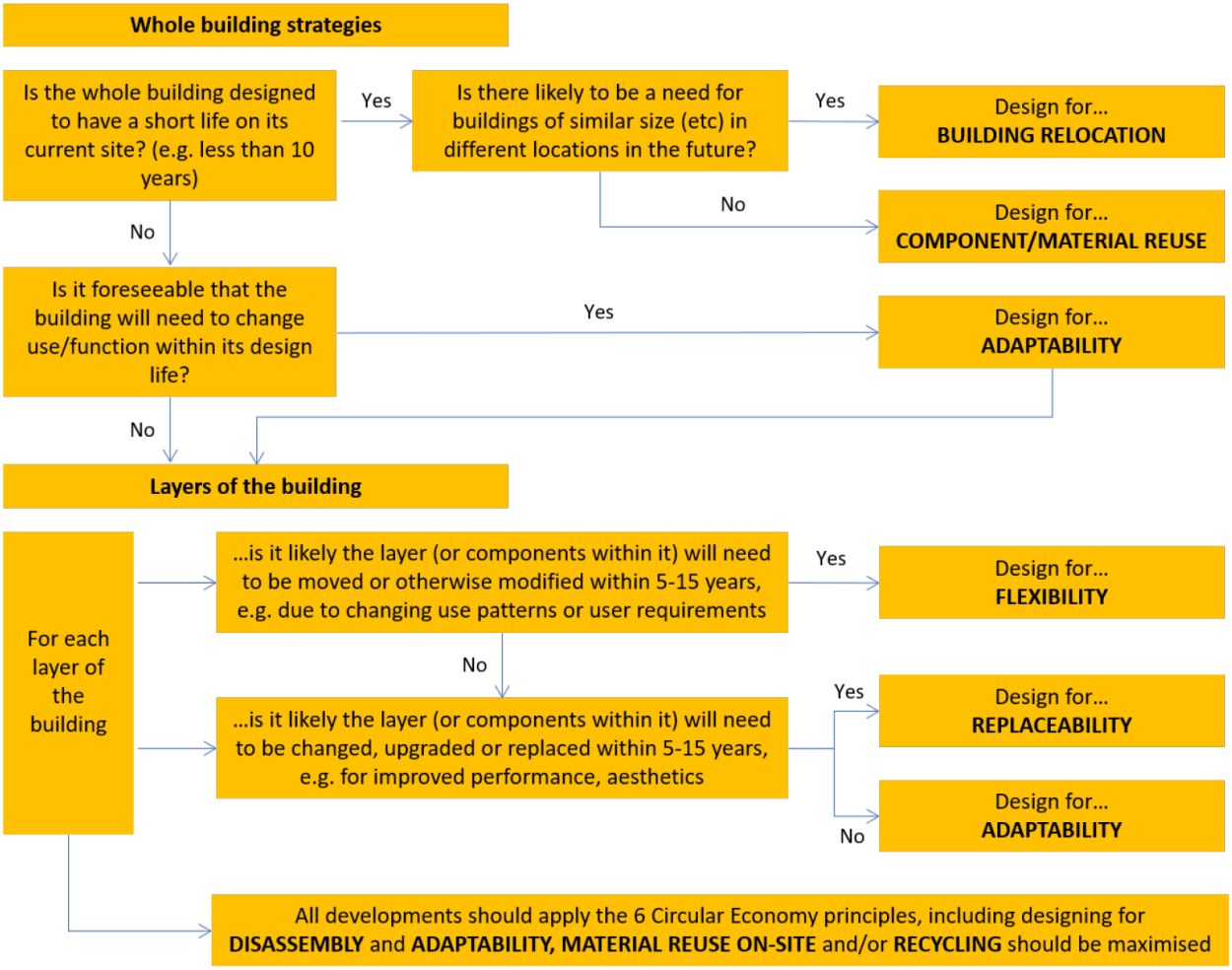


Figure 21: Decision tree for design approaches for new buildings, infrastructure and layers over the lifetime of development (Source: Reproduced from London Plan Guidance on Circular Economy Statements)

In addition, major schemes are encouraged to submit a Structural Report confirming that it is technically not feasible for the existing structure to be retained (as a part or as a whole).

Where the Pre-Demolition Audit, or the Structural Report identify that it is possible for an existing building to be retained and retrofitted, an assessment shall be undertaken to compare the Whole Life Carbon (WLC) impacts of the following development options:

1. Where existing basement and foundations are retained only
2. Where existing building is partially retained
3. Where existing building frame is retained, and a deep refurbishment is undertaken
4. Where existing building is retained in full, with a light touch refurbishment, focussing on fit-out is undertaken

Further details on WLC Assessments are included in 8.2.3 below.

Where all or part of the existing building can be retained and demolition can be avoided, this will help conserve resources, reduce embodied carbon, minimise waste and avoid dust and emissions from

demolition. However, this needs to be carefully balanced against other sustainability objectives, the need to deliver new housing and wider economic growth. This means that demolition may still be appropriate in some circumstances. Relevant reasons for proposing substantial demolition shall be detailed within a Sustainable Design Statement, including reference to the Pre-Demolition Audit, Structural Report and WLC comparison study undertaken.

When balancing the merits and impacts of retention or demolition of the existing building, the council will consider environmental, economic and social sustainability issues in the round with reference to other City Plan and London Plan policies.

8.2.3 Whole life carbon considerations

WLC costs and benefits over the life of the building need to be carefully considered to avoid allowing practises that unintentionally increase the overall carbon impact of a development.

WLC considers the combined impacts of both operational and embodied carbon emissions over a building's entire lifecycle. This includes the emissions associated with sourcing, extraction and processing of materials, transporting materials to site, construction of the building, in-use operations (including maintenance, repair and replacement) and end of life (demolition, disassembly and waste processing). The aim of this approach is to move towards a building or a product that generates the lowest carbon emissions over its whole life. WLC Assessments are considered to be cradle to grave assessments, which can also consider the retrofit or reuse of any existing built structures, in part or as a whole and the associated carbon savings this can enable.

Through a WLC Assessment, designers and developers are able to identify the parts of a building that have the highest levels of embodied carbon as well as operational carbon impacts and seek to remedy this through reviewing options. LETI have developed the Embodied Carbon Primer as supplementary guidance to their Climate Emergency Design Guide. The guidance includes useful prompts and information to support clients and designers to consider opportunities to reduce the embodied carbon of their developments, particularly within the appendices which give a range of design details which could be applied to different developments. This is in addition to emerging guidance from the UK Net Zero Carbon Building Standard (UKNZCBS), which includes new performance requirements and methods for best-practice alignment with net-zero outcomes in the built environment.

The London Plan requires that all applications that are referable to the Mayor of London comply with the London Plan Guidance on WLC Assessments, which includes a range of whole life carbon targets. In Westminster, to align with our climate priorities and City Plan Policy 38 on sustainable design, all major developments which include substantial demolition[3] are also required to prepare a WLC Assessments.

Substantial demolition includes total demolition of a building, façade retention redevelopment schemes and other redevelopment schemes where only the superstructure is being retained and where 50% or more of floor slabs and substructure of any existing building(s) is being demolished.

A WLC Assessment should reflect the latest Professional Standard on WLC Assessment published by RICS and where possible, should utilise Westminster's Planning Application Carbon Evaluation and Reduction 'PACER' platform. If a development in Westminster is referrable to the Mayor of London, the GLA's WLC Assessment Spreadsheet should also be completed.

As noted in the ESPD section on Energy, in line with this RICS Professional Standard on WLC Assessments 2nd edition and in recognition of the fact that there is no standard methodology for calculating operational energy within the context of WLC assessments, operational energy should be reported separately and

described in depth within either an Energy Statement or Sustainable Design Statement. Any reporting of energy cross-referred to in WLC Assessments should factor in grid decarbonisation.

The outcomes of the WLC Assessment should demonstrate the achievement of either the London Plan upfront embodied carbon targets, the emerging UK Net Zero Carbon Building Standards and/or requirements specific to Westminster which may be adopted in the future. The relevant requirements which should be achieved by a development shall be confirmed with the council.

There are links between WLC Assessments, Energy Assessments, Circular Economy Statements and other assessments which may be submitted as part of a planning application.

Applicants should refer to the following sources for further information:

- ESPD section on Energy
- ESPD section on Retrofit
- London Plan guidance on Whole Life-Cycle Carbon Assessments
- LETI Climate Emergency Design Guide
- LETI Embodied Carbon Primer
- UK Net Zero Carbon Building Standard – Pilot version (September 2024)
- RICS Whole Life Carbon Assessment (WLCA) for the Built Environment Professional Standard – Second Edition, effective July 2024
- Preoptima PACER

8.2.4 Efficient, resilient and adaptable buildings

All schemes should:

- Use high-quality, durable materials and detail which will ensure that buildings will have an extended lifetime and be resilient to changes in climate, such as hotter summers, or wetter winters, along with being designed for deconstruction.
- Provide flexible high-quality floorspace, to ensure that buildings may be able to change to meet different demands of occupiers over their lifetimes.
- Optimise resource and water efficiency, through the achievement of relevant standards such as BREEAM 'Excellent' (as specified in Policy 38 (E) 1 and 2), or other sustainability assessment/certification processes.
    - Developers should reduce the energy usage of buildings, in line with the ESPD section on Energy.
    - Developers should seek opportunities to minimise the use of mains water and incorporate measures such as smart metering, water saving and recycling measures to help to achieve lower water consumption rates in line with London Plan policy SI 5 Water Infrastructure.
- Enable the incorporation of, or connection to, future services and facilities such as low carbon energy sources. This could include district heating networks, where applicable.
- Minimise the need for plant and machinery to reduce local emission sources and to further assist in promoting adaptability across the building's lifetime.

Where demolition is allowed and new buildings are proposed, or where retrofit developments are proposed, these should be designed to meet the sustainable design principles above, with evidence provided within the **Sustainable Design Statement**.

Applicants should refer to the following sources for further information:

- LETI Climate Emergency Design Guide
- UK Net Zero Carbon Building Standard – Pilot version (September 2024)

8.2.5 Design which supports the circular economy

A key element of sustainable design is the promotion of a circular economy. Applications referable to the Mayor[24] must include a Circular Economy Statement which demonstrates how circular economy principles have been embedded into the design. The council also encourage all major applications, and any non-major applications involving demolition to prepare **Circular Economy Statements**–For further details, refer to the ESPD section on Waste Management.

The prioritisation of exemplar circular economy performance is encouraged where possible and will be considered as a public benefit within the decision-making process

The prioritisation of exemplar circular economy performance is encouraged where possible and will be considered as a public benefit within the decision-making process. For example, this could include committing to percentages of materials to be re-used on-site, setting higher recycled content targets and separating materials re-use and recycled targets. Any initiatives undertaken could be submitted as evidence at planning application stage.

Applicants should refer to the following sources for further information:

- ESPD section on Waste and Circular Economy
- London Plan Guidance on Circular Economy Statements

CALCULATING CIRCULARITY SCORES

One method for demonstrating circular economy performance could be through the calculation of a Circularity Score for the project. For each key building material, the embodied carbon associated with producing the material today shall be calculated. Furthermore, for each key material, a scenario for the resulting state of the material from the development shall be specified, which may include:

- Retained in-situ (100% circularity)
- Recovered for re-use (90% circularity)
- Recovered for recycling as equivalent product (50% circularity)
- Recovered for recycling as downgraded product (20% circularity)
- Waste disposed to landfill or for energy recovery (0% circularity)

The circulatory assumptions included in brackets above for each scenario are recommended, however these can be amended by applicants based on emerging industry guidance or valid alternative approaches.

[24] Development of 150 residential units or more and/or development over 30 metres in height referable to the Mayor. Major development is greater than or equal to 10 residential units; or 0.5 hectares site area (residential) or 1 hectare (non-residential); or gross floorspace of 1,000 sq m (GIA).

A Circularity Score can be calculated for each material using the following formula:

Material Mass x Embodied Carbon Factor x Circularity %

An overall Circularity Score for the project can then be calculated as follows:

Sum (Material Mass x Embodied Carbon Factor x Circularity %) / Sum (Material Mass x Embodied Carbon Factor)

A higher percentage Circularity Score will indicate lesser environmental harm. A template is provided in Appendix 2 to assist with the calculation of the Circularity Score.

8.3 Development Requirements

8.3.1 Information

WHOLE LIFE CARBON ASSESSMENT

WLC Assessments are required for referable applications and major applications which include substantial demolition. A WLC Assessment should reflect the latest Professional Standard on WLC Assessment published by RICS and where possible, should utilise Westminster's Planning Application Carbon Evaluation and Reduction 'PACER' platform. If a development in Westminster is referrable to the Mayor of London, the GLA's WLC Assessment Spreadsheet should also be completed.

Development should demonstrate through the WLC Assessment the achievement of either the London Plan upfront embodied carbon targets, the emerging UK Net Zero Carbon Building Standards and/or requirements specific to Westminster which may be adopted in the future. The relevant requirements which should be achieved by a development shall be confirmed with the council.

SUSTAINABLE DESIGN STATEMENT

Applicants should show that sustainable design requirements within City Plan Policy 38 have been met through a Sustainable Design Statement. Sustainable Design Statements are an adopted validation requirement for all applications which create new floorspace and/or where extensive works to retrofit/improve the environmental performance of a building are proposed. This includes householder applications.

The Sustainable Design Statement should include any rationale for the substantial demolition of an existing building, including a comparison of the WLC impacts of different development options, findings from the Pre-Demolition Audit and Structural Report.

The Sustainable Design Statement should also demonstrate where any specific sustainability standards have been met. This includes compliance with BREEAM, as required by City Plan Policy 38, or any other sustainability standards which represent industry best-practice.

Additional guidance on Sustainable Design Statements for different development types are available online[25]. This includes for:

- Householder Sustainable Design Statement
- Small Scale Residential Schemes (5 units or less)
- Medium Size Non-Domestic Schemes (500sqm – 1,000sqm GIA) and Residential buildings (5 – 10 units)
- Major Non-Domestic Schemes (>1,000sqm GIA) and Residential schemes (10 or more units)

[25] Please note, these are currently being updated and will be available online in due course. Following consultation on the ESPD, these links will be updated in the final version.

8.4 Standards

8.4.1 BREEAM

For the council to assess the impact of a proposed new building it is necessary to evaluate the environmental performance of the building in the round. BREEAM (Built Research Establishment Environmental Assessment Methodology) is the most established environment assessment methodology that rates and certifies the performance of buildings by assessing a broad range of sustainability issues and categories. The standard is set out in City Plan Policy 38 (E). This assessment methodology can be applied to a range of buildings from residential to offices and can be applied to both new buildings and retrofit projects.

All developments must integrate and positively address the sustainable design principles in Policy 38 and are encouraged to aim to achieve the highest possible BREEAM standards. The City Plan also sets requirements in policy 38 (E) for minimum BREEAM standards for development of certain types and sizes.

Table 12: for minimum BREEAM standards for development of certain types and sizes

Development Type	Size of Development	Standard Required
Non-Domestic[26]	Non-domestic development which creates 500sqm (GIA) or greater	At least BREEAM Excellent or equivalent
Residential conversions and extensions	Conversions or extensions which create 500sqm (GIA) or greater of residential floorspace or five or more residential units	Aim for BREEAM Excellent (BREEAM domestic refurbishment) or equivalent

Non-Domestic as referred to above includes some communal living accommodation such as hotels.

BREEAM compliance

Evidence is expected to be submitted to demonstrate the BREEAM standards are met or exceeded. This information is provided in two stages:

1) Planning application stage – using a BREEAM pre-assessment estimator submitted as part of the energy or sustainability strategy. This pre-assessment sets out the targeted credits and proposed measures in the scheme in accordance with different BREEAM methodology themes. It provides a narrative on the design and an indication of the likely score (and associated overall BREEAM rating to be achieved) which can be checked by officers at application stage.
2) Pre-occupation – usually secured by a condition attached to the application to be discharged prior to occupation. This is evidenced by the final or post-construction certification of the scheme by BREEAM confirming the level achieved. If BREEAM certification has not been provided prior to occupation, the council will consider an extension to this timeframe to avoid buildings lying empty.

[26] This includes all non-residential developments including conversions. extensions and changes of use

New residential developments must show that they are capable of achieving maximum internal mains water consumption of 105 litres per person/day excluding an allowance of five litres per person/day for external water use. Commercial development should achieve at least the BREEAM excellent standard for the 'Wat 01' water category or equivalent.

8.4.2 Other sustainability standards

There are other environmental assessment methodologies on the market including LEED (Leadership in Energy and Environmental Design), the WELL Building Standard, PassivHaus (including EnerPHit, which is applied to retrofit projects), NABERS and the emerging UK Net Zero Carbon Buildings Standard. If consideration is being given to a non-BREEAM methodology, a pre-application discussion should be undertaken for the council to understand how BREEAM equivalent standards will be achieved.

PASSIVHAUS

As stated above, other alternative methods for demonstrating compliance with sustainable design principles may be used and should be confirmed during pre-application discussions. One example of an alternative method is the PassivHaus Standard. Passivhaus buildings provide a high level of occupant comfort using very little energy for heating and cooling. The Passivhaus Standard for new buildings adopts a whole-building approach with clear, measured targets, focused on high-quality construction, certified through a quality assurance process. Applicants are encouraged to review the Passivhaus Standard and to consider whether development certified to the Standard may be possible.

EnerPHit is the Passivhaus certificate for achieving highly energy-efficient home retrofits. There are separate standards for retrofit projects as these are unlikely to achieve the same levels of energy efficiency as the Passivhaus standard for new buildings because many of the elements, like orientation and structure, are already decided. To meet the high levels of air tightness required, a building would typically fit triple glazing which is not always appropriate for existing buildings. The EnerPHit standard recognises this difficulty and sets the required performance at a lower level than Passivhaus to accommodate working with existing buildings

NABERS UK

NABERS UK measures and rates the actual energy use of offices, helping building owners to accurately track and communicate the energy performance of their buildings. It also helps identify areas for savings and improvements. NABERS UK only currently applies to office buildings. NABERS UK is encouraged on office development schemes, as long as it is in conjunction with other assessments and/or certifications in order to understand the full impact of the development.

UK NET ZERO CARBON BUILDINGS STANDARD

The UK Net Zero Carbon Buildings Standard (UKNZCBS) was created collaboratively by built environment organisations and leading experts in the profession in response to industry demands for a clear and unified definition for net zero carbon aligned buildings in the UK. The Pilot version of the Standard was published in September 2024. This document contains technical details on what a building needs to achieve, the technical evidence needed, and how this evidence needs to be demonstrated and reported to be deemed a 'net-zero carbon' building in whole life carbon terms.

Whilst the UKNZCBS is currently in Pilot, once it is adopted, the council will support development proposals which align with the requirements set out in the Standard.

RICS PROFESSIONAL STANDARD WHOLE LIFE CARBON ASSESSMENT, 2ND EDITION

Where a WLC Assessment is required, these shall be completed following the methodology set out in the RICS Professional Standard Whole Life Carbon Assessment, 2nd Edition which was effective from July 2024. Where applicants use the PACER platform, this will ensure compliance with the RICS Professional Standard.

9 Retrofit

9.1 Policy and Guidance Overview

- National

NPPF Chapter 2- Achieving sustainable development

NPPF Chapter 11- Making effective use of land

NPPF Chapter 12- Achieving well-designed places

NPPF Chapter 14- Meeting the challenge of climate change, flooding and coastal change

NPPF Chapter 16- Conserving and enhancing the historic environment

Historic England – Adapting Historic Buildings for Energy and Carbon Efficiency (2024)

Historic England – 'Your Home' online guidance

Sustainable Traditional Buildings Alliance (STBA) – Planning responsible retrofit of traditional buildings

LETI Climate Emergency Retrofit Guide

The Society for the Protection of Ancient Buildings (SPAB) Research into the Energy Efficiency of Old Buildings

- Regional

London Plan Policy SI 2 Minimising greenhouse gas emissions

London Plan Policy SI 4 Managing heat risk

London Plan Policy SI 7 Reducing waste and supporting the circular economy

London Plan Policy HC1 Heritage Conservation and Growth

- Local

City Plan Policy 38: Design principles

City Plan Policy 39: Westminster's heritage

Westminster City Council – Planning householder retrofit how-to guides

9.2 Introduction and Guidance

Refurbishment and retrofit projects provide an important opportunity to improve the energy and water efficiency of existing buildings and reduce emissions, which is key to achieving net zero carbon by 2040 and addressing water stress in the capital. Retrofitting exiting buildings can also have a number of embodied carbon benefits, along with maintaining buildings of historical significance.

9.2.1 Retrofitting existing buildings

Whilst there are benefits with retaining existing buildings, it is recognised that many perform poorly in terms of heating and cooling and overall resource efficiency. By upgrading existing buildings to improve insultation, glazing and exposure to weather events, this can help to use less energy. Furthermore, by retrofitting buildings to use other sources of energy, thereby reducing the traditional reliance on gas systems, this can also mean that the energy used by buildings results in less carbon emissions overall.

Similarly, water use efficiencies help mitigate water stress, contribute to carbon and energy savings and help manage the need for new major infrastructure by reducing a building's water demand. Water efficiency through retrofitting can also increase the energy efficiency of buildings by reducing hot water consumption and reduce costs on water bills.

The upgrade and reuse of existing buildings is a sustainable approach and can help to reduce higher upfront embodied carbon emissions associated with constructing new buildings. Retrofit can also enable existing and historic buildings, including listed buildings, to remain fit for purpose and in active use when sensitively adapted and upgraded. The responsible retrofitting[27] of buildings which contribute to the special character of conservation areas as opposed to demolishing them also helps retain their distinctive character.

Many of the existing buildings in Westminster are constrained, for example by space or subject to a heritage designation, and so retrofitting may be more complex. A large proportion of the building stock in Westminster has a heritage designation, whether through statutory listing or being located in a Conservation Area, so finding sensitive and effective ways to improve resource efficiency of historic buildings is of vital importance.

Given the extent of heritage assets, Westminster is uniquely placed to lead in work on the area of responsible retrofitting of historic buildings and this work area will be a priority in order to tackle the issue of climate change. The council will also ensure the value of Westminster's exceptional heritage remains and will continue to meet statutory duties to protect heritage assets. An approach to retrofitting measures that is iterative in nature and

[27] In line with Historic England definition: Responsible retrofitting is an informed and integrated attitude to retrofit in a way that enables people to reduce the operational carbon of a building, improve energy efficiency, and/or improve a building's resilience to the impacts of climate change. Responsible retrofit will take into account the building's location, context, design, construction, materials and use, to ensure retrofit measures perform well and avoid adverse impacts to health, heritage and the natural environment.

looks for lower-cost and minimally invasive interventions can often be most effective and will therefore be encouraged first.

In all planning decision making relating to refurbishment & retrofit, the council will support and enable both the conservation of energy and the conservation of buildings, seeking innovative and sensitive solutions for responsible retrofit which deliver the highest possible standards of environmental & energy performance, giving significant weight to the public benefits of appropriate, demonstrable improvements in energy & environmental performance.

The most effective retrofit solutions will optimise energy and water efficiency and ensure a safe, healthy and comfortable environment for occupants while protecting and enhancing heritage significance. The availability of trained and skilled trades people who can carry out the necessary works will be essential to delivering retrofit solutions. The council will seek opportunities to support skills development for a green economy as part of our Climate Emergency Action Plan.

9.2.2 Approach to retrofitting existing buildings

The council supports responsible retrofit and expect proportionate measures to be taken to improve the energy and water efficiency all of existing buildings, including the most challenging building types: **it is not a question of 'if' but a question of 'how'**.

In addition to the global climate drivers for retrofit the council recognises the local and more immediate challenges relating to building maintenance, year-round comfort, fuel affordability and environmental impact. Buildings can only be truly sustainable if they are comfortable, affordable, desirable and have minimal environmental impact.

Most buildings will be capable of some level of improvement and while for some buildings there may be a limit to the level of intervention that is possible, in many cases very significant improvements can be made.

The key to success is **understanding** – at all levels, from applicant to local authority to designer and contractor. In line with the **Whole Building Approach** set out in Historic England guidance[28], this should be based on:

- An understanding of the building and how it performs;
- An understanding of the significance of the building;
- Prioritising interventions that are proportionate, effective & sustainable; and
- Avoiding & minimising harm & the risk of maladaptation.

By the same token, there needs to be a holistic approach to historic buildings. Achieving a truly sustainable built environment is complex and wide reaching, and – especially in the context of historic buildings – focusing on energy alone can lead to unintended consequences and a failure to achieve meaningful benefits. Issues such as health & wellbeing, safeguarding of occupants and building fabric, grid decarbonisation, embodied energy & the long-term

[28] Adapting historic buildings for energy & carbon efficiency: HEAN 18 (Historic England, July 2024)

environmental impacts (positive & negative) of retrofit measures must all be considered if we are to achieve a truly sustainable built environment.

The council recognises the importance of buildings being '**retrofit ready**', to safeguard buildings and occupants, minimise the risk of unintended consequences and maximise the likelihood of predicted benefits being realised. As such, we will champion a 'maintenance first' approach in all cases.

A holistic approach is also appropriate when assessing and interpreting 'harm' to designated heritage assets, and the council will recognise and give significant weight to the '**public benefits**' of proposals in terms of climate change mitigation and adaption. As noted by Historic England[29], *'Questions of scale and balance are important … The balance is likely to favour proposals which offer meaningful, long term environmental benefits (such as improving energy efficiency, thus reducing carbon emissions and helping to achieve Net Zero) whilst having a minimal impact on significance'*.

Recognising the importance of safeguarding building fabric and occupant wellbeing in a changing climate, the council will also support appropriate adaptations to manage our changing weather patterns, in particular passive measures to combat overheating and ensure effective rainwater management.

While this guidance sets out many typical retrofit measures and provides general advice, the complex and sometimes unique nature of historic buildings means that generic guidance may have some limitations. Due to the unique nature of heritage assets, the balance of addressing climate change, protecting heritage assets and viability will need to be considered on a case-by-case basis. Applicants are encouraged to contact the council for pre-application advice.

Applicants should take a coordinated or 'whole building' approach to planning and delivering all retrofitting projects as opposed to delivering piecemeal measures. Applicants are encouraged to develop a **Retrofit Plan**, which may form part of the **Sustainable Design Statement**, to help understand all of the individual pieces of work needed to improve the building, how these interact and any associated consequences.

The Retrofit Plan should include details of the building's current performance and condition, including the identification of issues and locations where it is sub-optimal, options which have been assessed and how consideration has been given to this issue having regard to the impact upon the historic environment. Where the building affected is a listed building or within a conservation area, the impact of any retrofit measures on the building or area should be assessed and harm to their significance avoided.

Where **significance** may be affected, applicants should demonstrate that proposals have been designed to avoid and then minimise any potential negative impacts. In this respect applicants should demonstrate adherence to Historic England guidance[30], which advises the following steps to understand and mitigate potential impacts:

- Understand the impact of the proposal on significance

[29] Ibid
[30] *Adapting historic buildings for energy & carbon efficiency: HEAN 18* (Historic England, July 2024)

- Avoid, minimise & mitigate harmful impact in a way that meets the objectives of the NPPF
- Look for opportunities to better reveal or enhance significance
- Justify any harmful impacts in terms of balancing the sustainable development objectives of conserving significance & the need for change
- Understand the public benefits

Applicants should also demonstrate how the building in question will be **maintained** before, during and after retrofit, and how the proposed works address **future climate pressures** including overheating and rainwater management.

A Retrofit Plan can help maximise the energy, health and comfort improvements delivered by retrofit and avoid unnecessary, costly or abortive work. Furthermore, in the context of historic buildings, a Retrofit Plan can help to identify measures to ensure that buildings are treated sensitively, having regard to the differences between modern and traditional construction practices.

A **Retrofit Plan** should include:

- Key building information including context, construction, current condition, historic significance and associated constraints, risks, and opportunities.
- Identification of factors present in the existing building that affect resource usage and/or adaptability to climate change effects.
- Main works proposed along with related strategies and details to mitigate any risks identified.
- The sequence of work.
- Resource efficiency strategy.
- A plan for monitoring and reporting resource consumption.

Not all retrofit measures require planning permission (see Table 10). Small scale changes can still often deliver dramatic outcomes. These could include thoughtful maintenance and repair; changing how the building is operated; repairing existing windows and doors and taking advantage of their special characteristics; installing secondary glazing and upgrading lighting.

The following considerations and questions may provide guidance when considering which of the sustainability upgrades set out in the following section will be most appropriate for a property:

- **How is the building used?** Can it be used more efficiently? Firstly, you should ensure that you are already undertaking measures that can be implemented at no cost, which involve changes to behaviour rather than the building fabric, and low-cost minor alterations and additions to make the building more resource efficient.
- **What condition is the building in?** You should first undertake any necessary repairs, ensuring buildings are in good order and are watertight. A damp building will be less thermally efficient, and this should be addressed before additional measures are considered.

- Consider the type of heritage protection that applies. Is your property a listed building or within a conservation area?
- What scope do you have to make changes? Freeholders will have the most scope, while leaseholders and tenants will be constrained by the terms of their lease and will require permission/consent of the freeholder/landlord.
- What is the budget? Each building is unique and costs will vary depending on the requirements. Consider the cost effectiveness, and the likely payback period of measures that will have a medium to high cost.
- What permissions/consents do you need to obtain? Some measures will be 'Permitted Development' for which planning permission is not required, as long as the property is not subject to an Article 4 direction or planning condition amending the Permitted Development Rights. For listed buildings it is likely that listed building consent will be required. Please refer to permissions table below for details.
- Undertake work Ensuring that any new systems work effectively, and that occupants (and future occupants) understand how to use them.
- Monitor and undertake necessary maintenance, upgrading systems where new technology emerges.

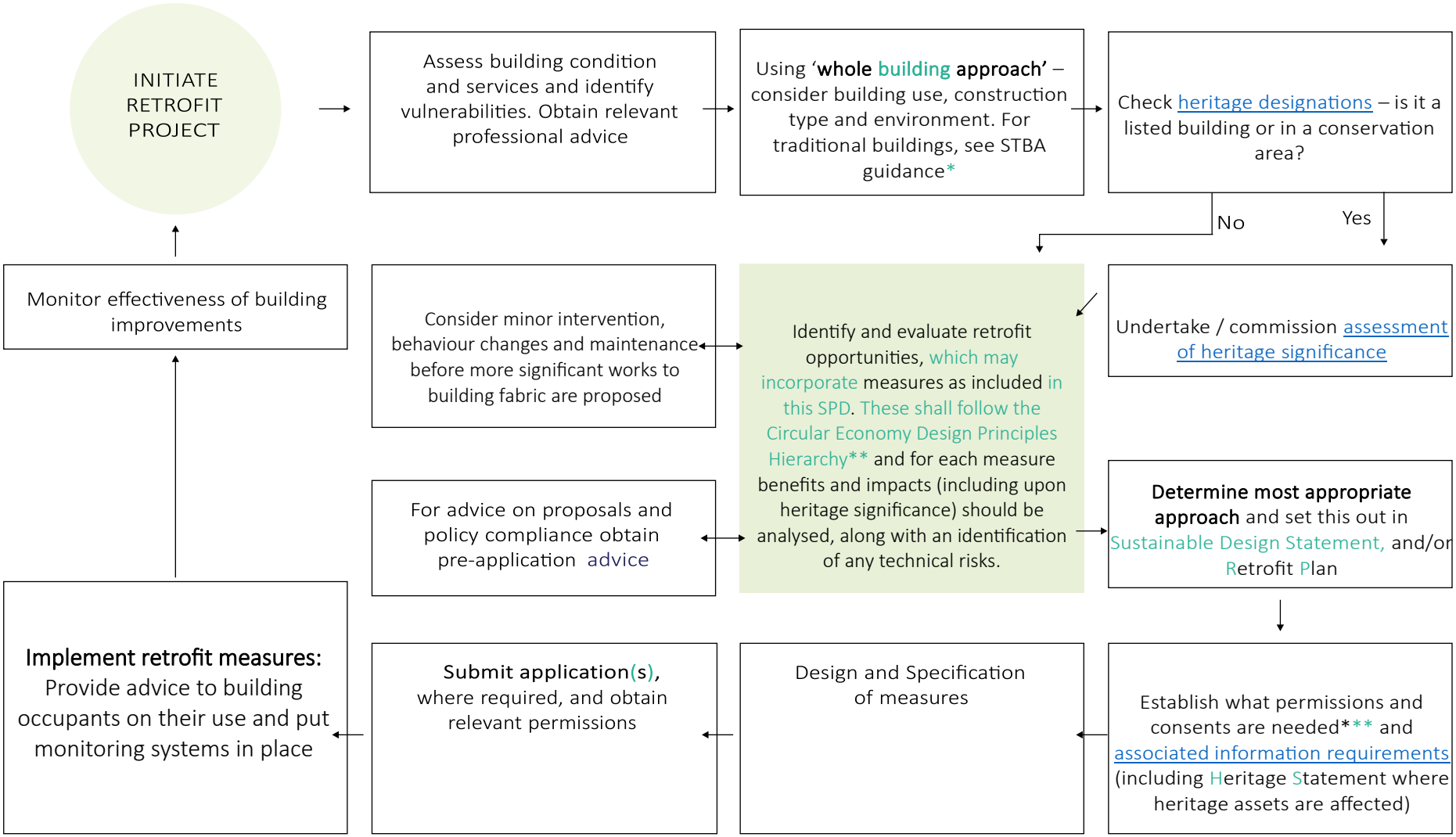


Figure 22: The process for assessing retrofit opportunities

* Sustainable Traditional Buildings Alliance (STBA) Responsible Retrofit Guidance
** See London Plan Guidance on Circular Economy Statements Hierarchy
*** See Table 13 Retrofit Permissions Required as a guide

9.2.3 Westminster retrofit opportunities

Advice is set out below on some of the opportunities for retrofit in Westminster. Please note that not all the measures below will be appropriate for all buildings. Equally, there may be some measures not listed below which may further improve the performance of a building, along with providing climate mitigation and adaptation benefits.

You should identify the most appropriate measures for your building based on the analysis recommended above, and using the advice on technical risks associated with different measures and impacts on heritage significance, where relevant. Lower risk measures should be considered first.

Further details on some of the suggested retrofit measures, heritage considerations and planning permissions required are included in Table 10.

BUILDING INSULTATION

Loft And Roof Insulation

Installing insulation in existing roof voids can have a significantly positive impact on energy efficiency. Historic buildings with a timber roof structure lend themselves to insulation between joists and rafters without any visual impact or harm to the historic building. Natural insulation materials such as wool-based insulation which allow a building to breathe should be used, reducing the possibility of moisture and damp problems. When fitting, an air gap must be left around the margins of the building to allow air to circulate. Care should be taken around electrical cables (lay these over the insulation) and allow a gap around any lights that may heat up (e.g. downlighters installed for the rooms below). It is also advised to insulate loft hatches.

Whilst insulation of a loft (between joists) is straightforward and is likely to be acceptable, insulation at rafter level (where a loft space has already been converted to provide additional space) is more complicated. There are various options including insulation between the rafters, on top of the rafters and below the rafters. Some options will result in the roof height changing. Additional considerations in listed buildings or unlisted buildings of merit in conservation areas may include whether there is a historically significant lining or ceiling fixed to the underside of the rafters. If this cannot be removed, and the only way to attach insulation is by removing the roof tiles and inserting from above, then this may not be economically feasible, unless other works to the roof are being undertaken at the same time. It is important that adequate ventilation is retained to avoid moisture build up and consequent damp problems.

For more information please see Insulating Floors in Historic Buildings

Floor Insulation (Suspended Timber Floors)

Heat loss through the floor amounts to around 15% for the average house. Simple draught-proofing of gaps between floor and skirting and between floorboards with sealant can be undertaken relatively easily and at low cost. Suspended timber floors on the ground floor, typical for many older properties can be insulated to improve thermal comfort. This will be quite straightforward if there is a cellar or crawlspace below, but without this, floorboards can be lifted and insulation inserted underneath, supported by netting. This should be to the depth of the joist only and should not block air bricks. Care needs to be taken when lifting

boards to minimise damage. Avoid blocking airbricks when draughtproofing or when insulating and take care to maintain cross ventilation beneath suspended timber floors to avoid rotting floor timbers. Consider the potential loss of historic fabric (floorboards/skirting/door surrounds/doors) that may occur if insulation increases floor height.

For more information please see Insulating Floors in Historic Buildings

Solid Wall Insulation

Solid wall insulation can be a way of improving the thermal efficiency of a building and could save energy and reduce energy bills. Most of the historic buildings in Westminster have solid masonry walls, either of brick or stone. The only way to insulate them is by adding a layer of insulation either internally or externally. Around 35% of heat loss from a typical home is through its walls.

External solid wall insulation systems consist of a layer of insulating material fixed to the wall and covered by a render or cladding, which provides a degree of protection from weather and impact damage. The major issue to consider is that external wall insulation will have an impact visually on the relationship between the building envelope and its openings, altering the detailing around windows and doors, and also eaves and roof verges. It is possible to extend roof eaves to deal with this.

For this reason, external solid wall insulation will need to be very carefully designed, and where heritage assets are affected, this is likely to be contentious. In these cases, it is likely to be allowed in certain circumstances such as on the rear elevations, and in enclosed locations, not for part-only of a unified terrace, although applications to apply to the whole of a terrace may maintain visual unity. Careful detailing is required around windows to minimise the impact of altered window reveals. This is generally considered a safer solution in terms of the risk of damp and moisture in a building than internal wall insulation and will not reduce floor space internally. However, there are also significant inherent risks in creating thermal bridges for moisture which can result in damp and rot problems in localised areas, so professional advice is necessary and very careful analysis of impacts on fabric would be needed and if acceptable, vapour permeable insulation should be used on traditional buildings.

Internal wall insultation will take up internal floorspace and can alter the relationship of the door and window reveals, and will require any skirting boards, cornicing and decorative plasterwork to be relocated. There are also inherent risks in creating thermal bridges for moisture which can result in damp and rot problems in localised areas, and in many circumstances, it will not be appropriate on buildings of traditional construction. On such buildings, where internal insultation is demonstrated to be appropriate, materials with similar breathable qualities should be used.

For more information please see Insulating Walls in Historic Buildings.

Draughtproofing

Poorly fitting windows and doors, often the result of warping over time and years of repainting can lead to significant heat loss and make rooms feel uncomfortable. A significant amount of heat is lost through windows, both through the glass and from the gaps in and

around the frames. The heritage significance of a building will influence the options that are available, as alterations to windows and doors can impact historic significance.

There are a range of types of draught proofing systems available, from DIY foam strips which stick on, to professionally fitted compression seals or carrier seals that fit within frames and are suitable for different types of windows. Generally, foam strips, although very low cost, are not recommended for sash windows, and will need to be replaced regularly. Casement windows will be suitable for compression seals that sit within the window frame, and sash windows will typically have brush seals installed, which seal the gaps between top and bottom sashes when closed.

Generally, there will be no problem with fitting these to existing windows in historic buildings. For particularly noteworthy windows in listed buildings, it is advisable to check with officers before proceeding.

For more information please see Draught-proofing windows and doors

GLAZING

Secondary Glazing

Secondary glazing is available in a variety of systems to suit different window styles. Heat losses from a window could be reduced by over 60% by using secondary glazing with a low emissivity (Low-E) hard coating facing the outside. This also has benefits in terms of noise reduction. There are a variety of systems – those that are openable – hinged or sliding, fixed, and lightweight removable. In all cases, careful thought should be given to how to access original windows for cleaning and maintenance.

Secondary glazing will generally be possible for all types of historic properties, subject to obtaining listed building consent (where relevant). For best results it should be combined with a refurbishment of existing single glazed windows. However, draught- proofing should not be applied to the original window to maintain ventilation and avoid condensation. Double glazed secondary glazing may be an option particularly where noise is a significant issue. When considering the historic fabric of a building, secondary glazing is a lower risk option than replacing existing historic glazing with thermal single or double glazing as secondary glazing is reversible.

For more information please see Secondary glazing for windows and Westminster Retrofit How To Guide- Windows

Thermal Single, Double (Or Triple) Glazing

Use of energy efficient glazing and modern double-glazed windows can achieve improved thermal performance as well as security and acoustic benefits. There are slim profile options as well as those with low emissivity coatings which improve performance. These are appropriate in conservation areas, subject to detail and in some situations in listed buildings. Upgrading of existing historic windows to incorporate slim profile double glazing is also possible where this can be achieved without harm to significance. This will only be acceptable where windows are of types robust enough to accommodate the increased thickness and weight of double glazing without significant alteration. Thermal single glazing could also be acceptable where the existing window cannot be adapted to take double glazing. Where historic windows to a listed building contribute positively to special interest

and these cannot be upgraded without harm to significance, they should be retained, repaired and consideration given to draught-proofing and secondary glazing or other benign and reversible methods of upgrading to improve thermal efficiency.

For more information see Modifying historic windows – Historic England, Westminster Retrofit How To Guide- Windows and Passivhaus Retrofit

HEATING AND ENERGY

Efficiencies in heating can be made by reducing sources of thermal discomfort and by choosing to heat the people rather than the air (especially when local sources use low-carbon energy). For space heating and cooling, adjusting the thermostat can deliver great benefits. When boilers need to be replaced, low carbon equipment should be chosen. In this way, significant energy and carbon savings can be made without adverse effects on the fabric of the historic building, its character, or its setting.

Boiler Upgrade

Without proper programmable heating controls, the benefits of a more efficient condensing boiler will not be realised. Therefore, thermostats should be programmable 'Chrono-proportional' thermostats on a timer, enabling a number of different programmable room temperature levels each day. These should be combined with TRV (Thermostatic Radiator Valves) in each room (except the room where the thermostat is located, and the bathroom) which switch off the heating in a room when it reaches the required temperature. Such systems can be wireless, which mean that no wiring or making good following works is required.

Ground And Air-Source Heat Pumps

Air source heat pumps take warmth from the air and use an evaporator coil to supply heating or hot water to a building. A system consists of an external unit, usually near a wall, though it can be located away from the building (requiring a clear amount of space either side for air circulation), and an internal unit with a hot water cylinder.

Ground source heat pumps consist of pipes underneath the ground which extract warmth to supply heating or hot water to a building. It consists of a loop of pipes filled with water and antifreeze, laid horizontally, in a trench or vertically (up to 100m deep). The fluid in the pipes warms up and passes through a heat exchanger in the heat pump converting it to high grade heat. To install ground source heat pumps requires a certain amount of space externally.

The installation of heat pumps on domestic premises are permitted development, meaning they don't need planning permission, providing they meet certain conditions. However, homes with pitched roofs, listed buildings and those in conservation areas may require planning permission for heat pumps. Further information on permitted development criteria for heat pumps can be found on the Planning Portal website[31] and residents are encouraged to contact the council to confirm whether planning permission is required before starting works.

Heat pumps are generally best suited to buildings with good insulation and airtightness levels. Heat pumps work better with underfloor heating, but radiators can be upgraded to

[31] https://www.planningportal.co.uk/info/200130/common_projects/27/heat_pumps/2

accommodate the lower output from heat pumps. Heat pumps need to be accessible for maintenance and so retrofitting into high-rise blocks will require a suitable balcony, roof or communal area nearby or an internal 'exhaust' unit. Electric heat retention storage heaters could be considered as an alternative for properties that cannot have a heat pump installed.

For more information please see Heat pumps, Westminster Retrofit How To Guide – Air Source Heat Pumps and Passivhaus Trust – The Right Time for Heat Pumps

Solar Photovoltaic

Solar PV panels convert energy from the sun into electricity. The installation of PV panels can significantly reduce CO2 emissions and help to reduce energy bills. The orientation of the roof is the critical factor in determining maximum operational efficiency of solar PV panels. They should be as close to south facing as possible, and work best at an angle of 30˚to the horizontal. They should not be shaded by trees or neighbouring buildings.

An alternative to conventional solar PV panels is solar roof tiles, which are designed to look similar to normal slate roofing tiles. These may be appropriate where the roof is not original – as they would replace modern roof fabric. Where historic fabric is retained, solar panels would involve less loss of original roof tiles.

For more information please see Photovoltaics (PV) and Westminster Retrofit How To Guide – Solar Panels

Solar Thermal Panels

Solar thermal panels use the radiant heat of the sun to warm water in solar collectors which is pumped to a thermal store. It is most likely to be used to top-up or supplement a main system, rather than meet all of a building's water heating demand. It is well suited to domestic buildings which have a low demand for hot water. The minimum amount of space needed to be effective is around 2-4m^2, ideally between south east and south west facing, at an angle of 30˚ and should not be shaded by trees or neighbouring buildings. In addition to the collector panels, space is typically needed to house a large hot-water cylinder with a storage capacity of at least 120 litres, and up to 200-300 litres for larger buildings. Additional pipework will also be necessary.

There are different types of system, direct and indirect. Direct systems heat potable water in the collector panel and pump it to a tank for use. Indirect systems are filled with fluid (often antifreeze) which passes through the collector panel and a heat exchanger transfers heat to potable water which is separate from the fluid circulating in the panels. This slightly more complex system provides freeze and overheating protection.

For more information please see Westminster Retrofit How To Guide – Solar Panels

GREENING

The retrofitting of existing buildings can bring about opportunities to enhance greening measures. This can help to contribute to the conservation and enhancement of biodiversity, along with enabling green corridors and facilitating habitat creation.

This can also be beneficial in managing flood risk by attenuating rainwater, reducing the likelihood of flooding from surface water runoff. Greening measures may also act to reduce overheating (and reduce the urban heat island effect), reduce carbon emissions, absorb noise

and trap air pollutants. Further information on the type of green infrastructure which could be included in retrofit proposals, see the ESPD section on Greening and Biodiversity. The nature of existing buildings and the type of greening measures proposed will need to be reviewed on a case-by-case basis. For example, by incorporating a green roof which may be a heavier, more intensive roof, this may require greater load bearing capacity, which could be less achievable on historic buildings. Additionally, there may be several fire safety considerations which must be accounted for in the design and installation of living wall systems. Key risks include the combustibility of the planted biomass, which requires consistent irrigation and maintenance to reduce the potential for ignition and fire spread. Additionally, certain living wall designs incorporate extensive combustible plastics within potting, irrigation, and drainage systems, which may pose fire safety risks.

9.2.4 Retrofitting Guidance for Householder Applicants

There are a growing number of resources to assist residents in making their homes more energy efficient and reducing their environmental impact. The key elements of retrofit include:

1. Reduce the heating demand and energy use;
2. Remove fossil fuel heating and cooking sources and replace with low carbon alternatives; and
3. Generate renewable energy on site if feasible.

The council's website provides useful resources and advice for residents on climate change, energy efficiency and wider sustainability opportunities.

The Planning Portal has information on planning rules, permitted development limits and building regulations for common projects for the home. Most energy and water efficiency initiatives for domestic properties, such as draught-proofing, insulation, renewable energy installations and butts for rainwater harvesting are permitted development, but residents in listed buildings or conservation areas should check Table 10: Retrofit Measures below for further guidance.

EcoFurb provides a low carbon homes service that helps homeowners plan and deliver energy efficiency improvements, gives impartial advice, and oversees the works. London residents can also use the free Plan Builder on their website to get ideas on how to retrofit your individual home.

LETI's Climate Emergency Retrofit Guide provides advice on how to develop a whole house Retrofit Plan. It also provides best practice targets for constrained (e.g. listed buildings) and unconstrained building types. The Passivhaus Trust also has guidance on their EnerPHit Retrofit Plan.

There are a number of useful resources for residents wishing to upgrade their historic homes including the council's webpages on Retrofitting historic buildings, Design and heritage in planning and Planning householder retrofit how-to guides as well Historic England's online resources for Energy Efficiency and Retrofit in Historic Buildings and the Sustainable Traditional Buildings Alliance (STBA) Planning responsible retrofit of traditional buildings.

9.3 Development Requirements

9.3.1 Information

SUSTAINABLE DESIGN STATEMENT

Sustainable Design Statements are an adopted validation requirement for all applications which create new floorspace and/or where extensive works to retrofit/improve the environmental performance of a building are proposed. This includes householder applications. Applicants are encouraged to include a Retrofit Plan, as set out above. Where heritage assets are affected, the Retrofit Plan and Heritage Statement[32] should set out how the proposed changes may impact on a building's heritage significance and address the balance between heritage harm and public benefit in line with relevant paragraphs of the NPPF and City Plan Policy 39. This should demonstrate that harm has been avoided in the first instance and, where harm is caused, demonstrate that the least harmful option is being pursued, and justify that the proposed solution improves building performance. Applicants are encouraged to demonstrate how any proposed changes are delivering a public benefit in delivering exemplar schemes to mitigate and adapt to climate change and achieving standards beyond policy compliance.

Additional guidance on Sustainable Design Statements for different development types are available online[33]. This includes for:

- Small Scale Residential Schemes (5 units or less)
- Medium Size Non-Domestic Schemes (500sqm – 1,000sqm GIA) and Residential buildings (5 – 10 units)
- Major Non-Domestic Schemes (>1,000sqm GIA) and Residential schemes (10 or more units)

9.3.2 Standards

LETI CLIMATE EMERGENCY RETROFIT GUIDE

All developments involving retrofit of existing buildings are encouraged to consider the design principles set out within the LETI Climate Emergency Retrofit Guide. These represent industry best practice and go beyond the fabric performance of BREEAM domestic refurbishment, driving better retrofitting outcomes.

[32] Where the Heritage Statement is being used to provide details on the impacts upon historic buildings, cross-references shall be made within the Sustainable Design Statement.

[33] Please note, these are currently being updated and will be available online in due course. Following consultation on the ESPD, these links will be updated in the final version.

UK NET ZERO CARBON BUILDINGS STANDARD

Whilst the UKNZCBS is currently in Pilot, once it is adopted, the council will support development proposals which align with the requirements set out in the Standard. This includes specific requirements for retrofit projects.

HOMES ENGLAND ADVICE NOTES

In July 2024, Historic England published an Advice Note[34] on Adapting Historic Buildings for Energy and Carbon Efficiency. The Advice Note provides further guidance on the need to retrofit historic buildings in the context of the climate emergency, along with guidance on permissions and decision-making processes. A range of common interventions to historic buildings are reviewed in detail within the Advice Note, from works to listed buildings, to insulation and new energy technologies. The Advice Note should be read in conjunction with other online resources from Historic England on Energy Efficiency and Retrofit in Historic Buildings.

STBA RESPONSIBLE RETROFIT GUIDANCE

The STBA Planning Responsible Retrofit of Traditional Buildings provides further guidance on how the retrofitting of buildings can be done in a way that reduces the energy consumption of buildings, whilst also maintaining building fabric, heritage and the health of building occupants. The guidance promotes a 'whole building approach' which integrates building fabric, services (such as heating and ventilation) and human behaviour with the context of existing buildings.

DETAILED PRACTICAL CONSIDERATIONS

[34] Historic England Advice Note 18 (HEAN 18)

Table 13: Overview of retrofit measures and permissions required

		Permissions required		
Upgrade	Risks, Issues and considerations	Unlisted within a conservation area	Listed building	Unlisted outside a conservation area
Loft and roof insulation	Low risks if installing between existing joists but ensure an air gap around edges of loft to avoid damp and allow air to circulate. Cold roof insultation is most likely to be appropriate. Installation of insulation at rafter level has more risks associated. Breathable insulation materials should be used.	Acceptable and permission not required as long as it doesn't alter external appearance of roof.	Acceptable and permission/consent not normally required as long as it doesn't alter external appearance of roof or involve modification of roof structure.	Acceptable and permission not required as long as it doesn't alter external appearance of roof.
Floor insulation (suspended timber floors)	Low risk, but care needed when lifting floorboards. Ensure air bricks are not covered by insulation as circulating air is needed to prevent damp and rot. Breathable insulation should be used.	Acceptable, internal alterations of an unlisted property in a conservation area don't require planning permission.	Likely to be acceptable subject to detail.	Acceptable/ Permission not required.
Internal solid wall insulation	Very high- Specialist advice and installation required due to possible moisture and ventilation problems. Breathable insulation should be used.	Internal alterations of an unlisted property in a conservation area don't require planning permission. However, you are advised to speak specialist advice if this is proposed to a building of traditional construction.	Acceptability will depend on impact on significance and fabric. Would require listed building consent for changes affecting the building's character as one of special architectural or historic interest, such as materials, details and finishes. This may be granted in spaces of lesser significance where original finishes have already been lost but impact on fabric needs consideration.	Internal alterations of an unlisted property don't require planning permission. However, you are advised to speak specialist advice if this is proposed to a building of traditional construction.
External solid wall insulation	High- Specialist advice and installation required due to possible moisture and ventilation problems. Breathable insulation should be used.	In certain circumstances external wall insulation may be possible, such as on the rear elevation, in an enclosed situation (not part of a unified terrace) where the materials used are of a similar appearance to the existing building or extension. Planning permission will be needed in all cases for external wall insulation comprising or	This is generally not considered appropriate for listed buildings, but this will depend on the impact on significance, as well as potential impacts on fabric. Planning permission and listed building consent would be needed.	Central Government guidance suggests this is Permitted Development on the principal elevation (or other elevations) of a dwelling house (not flats) subject to the material being of a similar appearance to the existing building or extension.

		Permissions required		
Upgrade	Risks, Issues and considerations	Unlisted within a conservation area	Listed building	Unlisted outside a conservation area
		including the following: stone, artificial stone, pebble dash, render, timber, plastic or tiles.		
Draughtproofing	Medium – Advice may be needed on ventilation and condensation.	Internal alterations of an unlisted property in a conservation area don't require planning permission.	Likely to be acceptable in most cases without listed building consent, although where the windows are especially important advice should be sought from design and conservation officers before proceeding.	Internal alterations of an unlisted property do not require planning permission.
Secondary glazing	Medium – Advice may be needed on ventilation and condensation. Take care not to damage existing windows and shutters (if present).	Acceptable Internal alterations of an unlisted property in a conservation area don't require planning permission.	Will generally be acceptable, subject to detailed design. Listed Building consent will be required.	Acceptable. Internal alterations of an unlisted property do not require planning permission.
Thermal single or Double glazing	Medium–Advice may be needed on ventilation and condensation.	Acceptable but windows should be well-designed and detailed to reflect the character of the existing building. Planning permission will be required for flats where new windows materially affect the external appearance of the building, e.g. where the frame size changes; opening mechanisms change or materials for the window change. For a dwellinghouse (not flats) this is Permitted Development but is subject to certain conditions.	Thermal single glazing or slim profile double glazing will be acceptable where this can be installed without harm to significance. Listed Building consent will be required, and this is most likely to be appropriate where historic windows have been replaced with ones whose design are of poor quality installed to a modern extension or later part of the buildings.	Acceptable subject to detailing. Planning permission will be required for flats where new windows materially affect the external appearance of the building, e.g. where the frame size changes; opening mechanisms change or materials for the window changes. For a dwellinghouse (not flats) this is Permitted Development subject to certain conditions.
Green roof	Medium – Specialist installation advice needed and possibly a feasibility study or structural survey to ensure the roof structure will bear the weight of the substrate; permeability of roof membrane by plant roots, and that any height of balustrade is sufficient, and structure has sufficient capacity to bear the load, where it is	Planning permission required where depth of build-up is greater than 150mm, which is fairly likely with a well-designed green roof. However, for dwellinghouses where the build-up is less than 150mm and doesn't exceed highest part of the existing roof this is likely to be Permitted Development, but this would be for flat roofs in a discreet location (not pitched roofs) but note proposals for	Acceptability will depend on impact upon significance. May be acceptable on an existing flat roof in a discreet location such as behind a parapet wall. Listed Building Consent and Planning Permission will be required.	Planning permission required where depth of build-up is greater than 150mm, which is fairly likely with a well-designed green roof. However, for dwellinghouses where the build-up is less than 150mm and doesn't exceed highest part of the existing roof this is likely to be Permitted Development,6ut this would be for flat roofs in a discreet location, (not pitched

		Permissions required		
Upgrade	**Risks, Issues and considerations**	**Unlisted within a conservation area**	**Listed building**	**Unlisted outside a conservation area**
	used as amenity space, although this would be less likely to be viewed favourably.	'intensive' green roofs which can be used as an amenity space would be less likely to receive permission. For flats planning permissions would be required.		roof) but note proposals for 'intensive' green roofs which can be used as an amenity space would be less likely to receive permission. For flats planning permissions would be required.
Heating controls	Low risk.	Internal alterations do not require planning permission.	Does not require planning permission or listed building consent.	Internal alterations do not require planning permission.
Water efficiencies	Low risk- In all locations we recommend water butts are discreetly located where possible, for example to the rear of the property.	Internal measures such as water-saving showerheads and taps and external rainwater harvesting such as water butts do not require planning permission.	Internal measures such as water-saving showerheads and taps do not require planning permission. Listed building consent for external rainwater harvesting such as water butts is unlikely to be required unless directly fixed to historic/ original fabric	Internal measures such as water-saving showerheads and taps do not require planning permission. External rainwater harvesting such as water butts do not usually require planning permission, but in areas where there is an Article 4 Direction you may require permission if located on principal elevations/ fronting the highway.
Air source heat pumps	Low risk (requires well-insulated buildings).	Permitted development for dwellinghouses or a block of flats, subject to certain restrictions. Air Source Heat Pumps which are not permitted development must conform to City Plan policy. Those which are permitted development should minimise effect on amenity of the area. One way of doing this is by complying with the noise standards. Seek advice from acoustics team in Environmental Health for larger/noisier systems.	Acceptable where the external unit is positioned in a visually discreet location. Noise may be an issue where planning permission is required. Air Source Heat Pumps which are not permitted development must conform with City Plan policy. Those which are permitted development should minimise effect on amenity of the area. One way of doing this is by complying with the noise standards. Seek advice from acoustics team in Environmental Health for larger/noisier systems. Listed building consent would be required.	Permitted development for dwellinghouses or a block of flats subject to certain restrictions including their use only for heating. Air Source Heat Pumps which are not permitted development must conform to City Plan policy. Those which are permitted development should minimise effect on amenity of the area. One way of doing this is by complying with the noise standards. Seek advice from acoustics team in Environmental Health for lager/noisier systems.

		Permissions required		
Upgrade	Risks, Issues and considerations	Unlisted within a conservation area	Listed building	Unlisted outside a conservation area
Ground source heat pumps	Low risk (requires well-insulated buildings).	Permitted Development for dwellinghouses (including buildings wholly consisting of flats).	Listed building consent would be required.	Permitted Development for dwellinghouses (including buildings wholly consisting of flats).
Solar photovoltaic system (PV electric panels)	Medium – Specialist installation advice needed and possibly a feasibility study or structural survey to ensure the roof structure will bear the weight of the panels. Have a supply of replacement roof tiles in case these are broken during installation.	This is Permitted Development, even on the roofs of principal elevations of dwellinghouses and flats in conservation areas, subject to it being 'sited so as to minimise its effect on the external appearance of the building and the amenity of the area', i.e. where there are alternative options for installation, the location which minimises the visual and amenity impacts must be selected. Would not be Permitted Development: • If it protrudes more than 20cm from the roof slope; • If it is higher than the highest part of the roof (excluding chimney); and • In a conservation area, on a wall which fronts a highway.	Will generally be acceptable in a discreet location, where not visible from surrounding properties (e.g. internal valley roof or flat wall behind a parapet). Listed building consent will be required.	This will not generally require planning permission as it is Permitted Development on any roof or wall slope of dwellinghouses and flats, subject to it being 'sited so as to minimise its effect on the external appearance of the building and the amenity of the area', i.e. where there are alternative options for installation, the location which minimises the visual and amenity impacts must be selected. Not Permitted Development if it protrudes more than 20cm from roof slope or is higher than the highest part of the roof (excluding chimney).
Solar thermal panels	Medium – Specialist installation advice needed and possibly a feasibility study or structural survey to ensure the roof structure will bear the weight of the panels. Have a supply of replacement roof tiles in case these are broken during installation.	This is Permitted Development, even on the roofs of principal elevations of dwellinghouses and flats in conservation areas, subject to it being 'sited so as to minimise its effect on the external appearance of the building and the amenity of the area', i.e. where there are alternative options for installation, the location which minimises the visual and amenity impacts must be selected. The General Permitted	Will generally be acceptable in a discreet location, where not visible from surrounding properties (e.g. internal valley roof or flat wall behind a parapet). Listed building consent will be required. It should be noted that standalone solar panels are not permitted under Permitted Development rights in the curtilage of a listed building.	This will not generally require planning permission as it is Permitted Development. Not Permitted Development if it protrudes more than 20cm from roof slope or is higher than the highest part of the roof (excluding chimney), on any roof or wall slope of dwellinghouses and flats, subject to it being 'sited so as to minimise its

		Permissions required		
Upgrade	Risks, Issues and considerations	Unlisted within a conservation area	Listed building	Unlisted outside a conservation area
		Development Order (GPDO) indicates that solar PV or solar thermal equipment needs to be reversible and should be removed as soon as reasonably practical once longer needed. Would not be Permitted Development: • If it protrudes more than 20cm from the roof slope; • If it is higher than the highest part of the roof (excluding chimney); and • In a conservation area, on a wall which fronts a highway.		effect on the external appearance of the building and the amenity of the area', i.e. where there are alternative options for installation, the location which minimises the visual and amenity impacts must be selected.
Boiler upgrade	Low risk.	Will generally be acceptable ideally should be located on the rear of a property and next to existing downpipes. If an existing flue is lawful and proposed new one is of the same dimensions, it probably won't require planning permission to replace. A flue is Permitted Development on a dwellinghouse (not including flats) subject to the height of it not exceeding the roof by more than 1m, and in a conservation area not fronting a highway or being on principal or side elevation.	Likely to be acceptable where the flue is positioned in a visually discreet location on the rear elevation, ideally next to existing downpipes. If an existing flue is lawful and its replacement is proposed with a new one of the same dimensions, it is unlikely to require planning permission. Listed building consent would be required for the flue and for any internal alterations.	A flue is not Permitted Development for flats. Planning permission would be required for any flue that would materially affect the external appearance of the building. Would be Permitted Development for a dwellinghouse subject to it not exceeding the highest part of the roof by 1m or more. If an existing flue is lawful and proposed new one is of the same dimensions, it probably won't require planning permission to replace.

9.4 Monitoring

City Plan Key Performance Indicator 17: Number of developments of thresholds set out in policy achieving BREEAM excellent (or equivalent) Standard

City Plan Key Performance Indicator 31: Number of designated heritage assets completely demolished/lost

10 Appendices

Appendix 1:
Wild West End Value Matrix

The Wild West End (WWE) Value Matrix, developed by Westminster's largest property owners, is a set of criteria to help establish best practice and ensure high quality delivery when creating new green space in the city's dense urban environment. There are criteria set out depending on the function of the green space that should be met. Green spaces should aim to have at least two functions to be considered multi-functional. This matrix assigns values to the green space:

– Biodiversity (n.b. The Environment Act (2021) mandates that all developments (unless exempt) must achieve net gain for biodiversity of 10% and developers are required to submit a biodiversity gain plan);

– Climate;

– Microclimate;

– Wellbeing; and

– Social.

Values are assigned based on the above factors and the greater number of functions that a site fulfils, the greater value it has. This qualitative approach means that play facilities for young people and sustainable drainage, for example, for a local housing project, can co-exist by design rather than by default. Pocket parks and smaller areas of open space can be as valuable as large sites as they have a range of functions for the people that use them. This incremental approach is also valuable for overall greening of the whole city and cumulatively addressing deficiency. Incorporating green infrastructure onto walls and buildings is hugely valuable additional infrastructure.

Function	Biodiversity		Climate		Microclimate
	Connectivity	Habitat provision	Water management	Energy & Carbon	Air quality
GeneralRequirements(forallgreenspacetypologies)	Provision of a wide mix of pollen rich species with seasonal variety; and / or Provision of fruiting trees or shrubs bring variation in biodiversity benefits, mistletoe establishment.	Consideration of the type and quantity of habitats provided (e.g. wildflower meadow, native shrub planting, hedgerow or pond); and Inclusion of correctly installed and orientated species features such as: – Bird boxes (generic or specific) – Bat boxes – Invertebrate boxes	Demonstrate significant retention and re-use of rainwater on site such as: – Incorporation of areas for water attenuation during rainfall events such as swales or depressions – Rainwater collection and re-use from adjacent buildings and hard surfaces and Provision of hardy, drought tolerant planting that requires no or minimal irrigation. and Where practical, the provision of mulch to all planted areas to help retain moisture.	Incorporation of sustainable energy generation where part of a wider energy strategy; and / or Demonstrate reduction of energy usage in associated buildings, such as reduced heating / cooling cost; and Demonstrate the provision of suitable measures to optimise carbon sequestration/ reduction (e.g. the use of low embodied carbon materials; consideration of the end of life use of materials; and selection of planting species to maximise carbon sequestration over their lifetime).	Demonstrate the identification of suitable measures to improve air quality based on site conditions. These may include: Provision of large species trees (15m+); and / or Incorporation of species with higher leaf density and a variety of textures to help capture and filter particulates; and / or Provision of hedges / trees / green walls to create a buff er to adjacent trafficked areas; and Consideration of pollution tolerant species, such as trees with flaking bark.

	Well-being		Social	
Thermal comfort	Sensory	Active	Engagement	Interaction
Provision of features such as large trees, trellises or green walls to provide shade and shelter; and / or Provision of open moving water such as fountains, to provide cooling benefits.	Provide opportunities for relaxation and stimulation such as: – Seating areas for quiet contemplation – Visually attractive planting with a variety of textures, colours and seasonal variation – Scented planting such as herbs and flowering species – Sound and movement through planting and water features	Where accessible, provide opportunities for sport and recreation such as: Sports courts Play areas Exercise equipment – Running tracks and / or Provide opportunities for informal exercise such as: Walking routes with seating Natural play Gardening	Where accessible, provide opportunities for customers to directly engage with the space and inform physical changes or usage and activities, such as: Gardening club Resident's committee – Social planning group or For inaccessible spaces, provide opportunities for local residents / workers to directly engage with the space and inform the management and maintenance. Ensure that users are aware of the wider benefits, aims and objectives of the installation.	Where accessible, provide opportunites for formal interaction, such as: – Sports clubs; – Gardening clubs – Play groups and / or Provide opportunities for informal social interaction, such as: – Group seating areas – Play spaces – Picnic tables – Technologically enabled area (to encourage outdoor working)

Function		Biodiversity		Climate		Microclimate
		Connectivity	Habitat provision	Water management	Energy & Carbon	Air quality
Feature-specificrequirements(tobeconsideredin additiontothegeneralrequirements)	Green/blueroof	Where planted, ensure a minimum 50% coverage (seeding and/or plug planting) with native wildflower, herbs and grasses; and Where sedum is additionally proposed, at least four sedum species should be included.	Provide a minimum of two types of substrate with a range of depths to provide values to a wider variety of species.	The inclusion of void formers to allow for the retention of water on the roof (blue roof system); or Provide a variety of depths of substrate and areas of shallow depressions to allow for greater water retention.	Maximise substrate to optimise carbon sequestration. (>200mm)	Demonstrate measures to reduce the exposure of the green space to extreme wind or sunlight conditions often experienced at roof level.
	Greenwall	A minimum of three species should be incorporated.	N/A	Where practicable, soil-based systems should be used; and Ensure the provision of integrated water storage for irrigation.	N/A	Consideration of the location of the green wall in relation to prevailing winds / localised air movement.
	Publicrealm	Provide strategic links to existing green spaces. Where window boxes and hanging baskets are installed, ensure at least 60% of planting is nectar/pollenproducing flower species.	Designs should be sensitive or complementary to the ecology of adjacent green spaces.	The provision of cellular storm water storage system around tree roots or integrated with areas of planting; or Ensure the provision of a large permeable surface area at the base of the tree/ adjacent to soft landscape areas.	N/A	Planting of hedgerows as an alternative to fencing or other hard boundary treatments.
Indoorgreening		N/A	N/A	Provision of planting that requires no or minimal irrigation.	Consider species which require low energy requirements. For example, plants that avoid use of artificial lighting.	Selection of species which benefit indoor air conditions such as provision of oxygen and capture of harmful indoor pollutants.

	Well-being		Social	
Thermal comfort	Sensory	Active	Engagement	Interaction
N/A	N/A	N/A	N/A	N/A
Consider the location of vertical greening. For example living walls on southern facing façades can cool both the building. and adjacent public realm.	Consideration of opportunities for noise absorption in the location of the green wall.	N/A	N/A	N/A
Where tree planting is included, consider species type and location. For example large deciduous trees adjacent to southern face of buildings will provide protection from the sun and passive cooling of building in the summer and allow more light in winter; and / or Provision of avenue of trees adjacent to tall buildings to reduce the effects of downdrafts and wind tunnelling.	Where tree planting is considered, select species to provide movement, texture and seasonal interest and to help create a 'sense of place'; and / or Adjacent to buildings, provide large species trees so that the canopy is visible from higher level windows.	Provision of tree-lined streets or other visible green features such as swales which can help promote walking and cycling through improved external conditions; and Consideration of linkage and connectivity with other areas of green space.	N/A	Provide opportunities for people to interact with the space, such as: Art installations Programme of actvities or events throughout the day / season.
N/A	Provide opportunities for relaxation and stimulation through visually attractive planting with a variety of textures, colour and scent.	N/A	Ensure that users are aware of the wider benefits, aims and objectives of the installation.	Demonstrate the use of the planting to encourage social interaction (e.g. by providing noise absorption or through creative installations, such as planted seating areas that promote social interaction).

Appendix 2: Circularity Score Template

Material – categorised by recovery outcome	NRM* 3 Element Category	Mass	Embodied Carbon Factor	Estimate of embodied carbon	Expected recovery outcome of material	Circularity Score assigned	Estimate of embodied carbon retained
		Tonnes	*$kgCO_2e/kg$*	*Tonnes CO_2e*		*%*	*Tonnes CO_2e*
Explanation / example	e.g. Element 2.1- Superstructure Frame	Estimated based on known info/ rules of thumb	Carbon intensity to produce today	= Mass x Embodied Carbon Factor To represent the embodied carbon of replacing material today	e.g. Reclaimed for re-use	Recommended values: Retained-100%, Re-used-90%, Recycled as equivalent- 50%, recycled as downgraded- 20%, Landfill - 0% circularity	= Estimate of embodied carbon x Circularity Score assigned
Include all materials in substructure (NRM* 1) and superstructure (NRM* 2)							
Sum	Estimate of embodied carbon of existing materials:			**Total 1**		Estimate of embodied carbon of existing materials retained:	**Total 2**
Circularity Score	**Total 2 / Total 1 (%)**						

**NRM refers to the RICS New Rules of Measurement*

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