

Basements

Draft Supplementary Planning Document (SPD)

October 2017


Lambeth

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CONSULTATION

The Council is circulating this draft version of the document so that local residents, property owners / building managers and any other interested parties can comment on its content. All comments received will be given careful consideration and where appropriate amendments will be made prior to the adoption of a final version.

When adopted the Basement Supplementary Planning Document will be used by Council and other parties to manage change in a positive manner and will help inform future action.

This draft document is out to consultation until 04 December 2017

Submissions should be made by e-mail: planningconservation@lambeth.gov.uk

or in writing to

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The final version of this document will be made available to view on the Council's website.

1 Introduction

Background

- 1.1 The council is committed to supporting development that allows everyone in Lambeth the opportunity to make the most of their property in a positive way, not just for them but for their neighbours and the community as a whole.
- 1.2 Across London high levels of development pressure and high land values have given rise to an increasing level of below ground development; to achieve additional floor space within existing homes, and in new build development.
- 1.3 As with many other London Boroughs, Lambeth currently does not have a basement specific policy or guidance, although there are a number of policies within the Lambeth Local Plan (2015) which are relevant to below ground development. With an increasing number of basement applications a Supplementary Planning Document (SPD) is considered the best way to address this issue. An SPD that clearly sets out Lambeth's requirements, and which supports and assists with the interpretation of our existing policies within the Lambeth Local Plan (September 2015).
- 1.4 To inform this process, the Lambeth Residential Basement Study - Arup (April 2016) was commissioned to consider the potential risks associated with residential basement development in relation to the differing hydrological and geological characteristics across Lambeth. The study concluded that: *'A Basement Impact Assessment (BIA) approach is needed, under which all applicants for planning permission for a residential basement would be required to undertake a structured assessment of their proposed development in relation to the physiographic conditions at their site, and to submit the results of their assessment as part of their application'*.

Purpose of document

- 1.5 The Basement Supplementary Planning Document (SPD) when adopted will provide guidance for those preparing to construct a basement storey or extend their existing basements. Whilst this guidance is primarily for applicants proposing a basement extension to an existing residential property or for those likely to be affected by such a development; the general principles will also be relevant for a range of sites that propose below ground excavation to create floor space. There are a number of policies within the Lambeth Local Plan that are relevant to basement development: flood risk, design, removal of soil and the retention of trees to the protection of biodiversity. Bringing all of this into one document and providing clarification as appropriate on existing policies where they appear to contradict will be of benefit to both residents and developers.
- 1.6 An SPD, is guidance and does not introduce new policies but is intended to help applicants understand how to make successful planning applications. It does not add unnecessarily to the financial burdens of development in line with the requirements of the National Planning Policy Framework (NPPF) (para 153).

What is basement development and when is planning permission required?

- 1.7 Basement development includes any excavation to form new or additional floor space below ground level of an existing or new development; or work which requires underpinning (including under pinning relating to external excavation).

Planning permission

- 1.8 Most basement development will require planning permission, but there are certain circumstances where it may be 'permitted development'. The criteria under which basement work may be permitted development is complex and it is not appropriate here to outline what does and does not require planning permission. The Government's planning website www.planningportal.gov.uk and the Council's website www.lambeth.gov.uk provides further up-to-date advice on such planning controls. If your property is located in a conservation area, planning permission may also be required for associated demolition works.
- 1.9 For those considering undertaking works that do not require planning permission, it is recommended that a Certificate of Lawful Development is sought from the Council, as this provides official confirmation that planning permission is not required.
- 1.10 In some areas the Council may have removed permitted development rights by using an Article 4 Direction. These additional planning controls mean that planning permission is required for an identified list of works. Further information on Lambeth's Article 4 Directions is available on the Council's website www.lambeth.gov.uk.
- 1.11 In instances where planning permission is not required for the construction of a basement, it is advisable to consider the advice in this document as best practice. Other regulations will still apply and you will require separate Building Regulations approval or compliance with those regulations. Lambeth Building Control provides this service; further information can be found on the council's website www.lambeth.gov.uk.

Listed building consent

- 1.12 Listed building consent will be required for basement development that affects the special architectural or historical interest of a statutory listed building. Please contact the council's Conservation and Urban Design team who will advise if listed building consent is required; further information can be found on the council's website www.lambeth.gov.uk.

Pre-application advice

- 1.13 A pre-application advisory service <https://www.lambeth.gov.uk/planning-and-building-control/planning-applications/pre-application-planning-advice-and-performance> is available for planning and listed building consent application advice prior to the submission of an application; further information can be found on the council's website www.lambeth.gov.uk.

Trees

- 1.14 Tree work and tree removal will require prior consent or formal notification to the council, if a tree is subject to a Tree Preservation Order (TPO) or if a tree is located within a conservation area; further information can be found on the council's website www.lambeth.gov.uk.

Policy Context - existing policy and guidance

National Policy

National Planning Policy Framework (NPPF) 2012

- 1.15 Sets out national guidance on planning; it does not deal specifically with basements, but paragraph 109 identifies “Land Instability” as presenting risks to be taken into account by planning authorities. The NPPF paragraph 100 sets out the regime and the methodology for taking account of flooding risk in relation to development.

Regional Policy

- 1.16 London Plan (2016)
Has a number of the policies which have implications for developments which include basements. New development, including that on garden land and that associated with basement extensions, should avoid having an adverse impact on sites of European importance for nature conservation either directly or indirectly, including through increased recreation pressure on these sites. New development should also take account of the Plan’s more general design principles and those on neighbourhoods, housing choice, sustainable design and construction, as well as those on climate change, play provision, biodiversity, and flood risk.

Mayor’s Sustainable Design and Construction Supplementary Planning Guidance (2014)

- 1.17 Provides guidance on the implementation of The London Plan policy and includes particular guidance on basements and lightwells. It states that where there is pressure for basement developments, boroughs should consider whether there are any particular local geological or hydrological issues that could particularly affect their construction, and adopt appropriate policies to address any local conditions.

Local Policy

Lambeth Local Plan (2015)

Contains a range of policies relating to basement development.

- 1.18 Policy EN1 Open space and biodiversity – Seeks to prevent development that would result in the loss, reduction in area or significant harm to the nature conservation or biodiversity value of an open space including any designated or proposed Local Nature Reserves (LNR) or Sites of Importance for Nature Conservation (SINC) unless adequate mitigation or compensatory measures are included appropriate to the nature conservation value of the assets involved.
- 1.19 Development proposals should wherever possible protect, enhance, create or manage nature conservation and biodiversity interest in accordance with the borough’s Biodiversity Action Plan and the Mayor’s Biodiversity Strategy.
- 1.20 Policy EN4 Sustainable design and construction – Requires development proposals of any scale to demonstrate sustainability principles in a supporting statement. The information provided should be proportionate to the scale of the proposed development and its likely impact on, and vulnerability to, climate change. Minimum information requirements are set out within London Plan Sustainable Design and Construction Supplementary Planning Guidance and included within the council’s local validation requirements.
- 1.21 Policy EN5 Flood Risk - Requires the management of flood risk within the London Borough of Lambeth to be undertaken in line with the National Planning Policy Framework 2012 (NPPF), Flood and Water Management Act 2010 (FWMA), Thames Estuary 2100 Plan 2012, Flood Risk Regulations 2009 (FRR) and the European Water Framework Directive 2000 transposed into law through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.

- 1.22 It sets out the council's requirement of an assessment of a scheme. That the proposed below ground development does not cause harm to the built and natural environment and local amenity, and would not result in flooding or ground instability.
- 1.23 The council requires a sequential, risk-based approach to the location of development to avoid, where possible, flood risk to people and property and manage any residual risk, taking account of the impacts of climate change over the lifetime of the development. Steering development towards areas of lowest flood risk, both across Lambeth and within the development site boundary.
- 1.24 Policy EN6 Sustainable drainage systems and water management - Requires a sustainable urban drainage system (SuDS) to demonstrate a sustainable approach to drainage through design layout, to mimic as closely as possible the site's natural processes, thereby mitigating and enhancing the development's impact on flood risk, water quality and habitat / amenity value.
- 1.25 Policy EN7 Sustainable waste management – This policy supports the London Plan requirement for London boroughs to manage as much as possible of its future waste locally, with the objective of becoming self-sufficient by 2031.
- 1.26 Major development sites should recycle construction, excavation and demolition (CED) waste on-site wherever practicable. For all development, CED waste should be minimised through reuse and recycling within London as far as possible. Disposal of CED waste in landfill should only take place in exceptional circumstances, where it has been demonstrated that alternative, more sustainable fates are not feasible.
- 1.27 Policy H5 Housing Standards - The amenity space standards apply to all new housing in Lambeth including new-build dwellings, conversions and change-of-use schemes where new dwellings are created.
- 1.28 Policy H6 Residential conversions – Requires that development provides a high quality of accommodation and each new self contained unit meets the standards for new residential accommodation set out in Policy H5.
- 1.29 Policy Q2 Amenity – Sustainable development should protect the amenity of existing/future occupants, neighbours and the visual amenity of the community as a whole.
- 1.30 Policy Q9 Landscaping - Requires development to ensure that satisfactory provision has been made for future growth and aftercare; retains and enhances existing planting and landscape features of value and protects them during construction; protects and enhances existing designated habitats and creates new habitats/areas of nature conservation interest and biodiversity value; as well as providing sustainable drainage and minimising surface run-off.
- 1.31 Policy Q10 Trees - Development should be designed positively to integrate existing trees and ensure protection from construction impacts and site works. Where trees are located within a development site, the appropriate arboricultural information should be obtained and applied to demonstrate that layouts have been informed by the use of such survey and tree constraints mapping information.

- 1.32 Policy Q11 Building Alterations and Extensions - Requires proposals for alteration or extensions of buildings to be well designed and built to a high standard. Basement extensions, under existing properties are generally acceptable subject to design.
- 1.33 Policy Q14 Development in gardens and on backland sites - Resists development which would result in the loss of biodiversity, soft landscaping/permeable drainage or openness, and specifies that a significant proportion (no less than 70 per cent) of the existing garden is retained with the host building.
- 1.34 Policy Q15 Boundary Treatments – Seeks the retention and reinstatement of boundary treatments that are characteristic of the immediate locality, are historically unique or contribute to local distinctiveness.
- 1.35 Policy Q20 Statutory listed buildings - Requires development to conserve and not harm the significance /special interest of listed buildings, including their setting.
- 1.36 Policy Q22 Conservation areas - This policy requires development to preserve or enhance the character or appearance of the conservation area, respecting and reinforcing the established positive characteristics of an area.
- 1.37 Policy Q23 Undesignated heritage assets: local heritage list – includes Archaeology (archaeological priority areas), buildings and structures (local list) and designed spaces and landscapes (local landscape register), the objective is to sustain or enhance their significance; and protect their settings.
- 1.38 Policy T8 Servicing – Requires adequate provision to be made for servicing appropriate and acceptable to the scale, form and location of the proposed development and in terms of the impact on the amenity of adjacent properties and road and traffic conditions of the area.

Local Planning Guidance

Building Alterations and Extensions Supplementary Planning Document 2015

- 1.39 Basements - The outward appearance of new basement accommodation is very important and will be expected to relate sensitively to the main building, its architectural form and materials, windows and other detailing.

2 Pre-application Advice and Consultation

Pre-application Advice

- 2.1 The Council offers a pre-application advice service for applicants. Detailed information on the planning advice service is available on the Council's website. As set out in the NPPF, the pre-application stage can resolve issues for all parties prior to the submission of a planning application (NPPF, para 188).
- 2.2 Basement development is often contentious, in part due to the length of construction phases of work and the disruption this can cause to neighbouring occupiers. Applicants are therefore advised to consult with the council at the earliest opportunity through its pre-application advice service to gain advice on proposals.
- 2.3 Given the complexity of the basement construction process, it is particularly important that detailed proposals for all aspects of design and construction are fully worked up prior to submission of any planning application. The pre-application discussions will confirm which flood zone the proposal is within. A structural engineer should be on the initial design team and details of the method of construction and how the process will be managed should also be prepared at this stage, through a Basement Impact Assessment (Section 9) and a Draft Construction Management Plan (Section 7).

Pre-application Neighbour Consultation

- 2.4 Applicants for basement excavation are encouraged to consult with all neighbouring occupiers within the vicinity of the site and with their local amenity societies prior to submitting an application, and provide them with details showing how structural matters have been considered by a chartered civil engineer, including the impact on adjoining properties, drainage, nearby trees and on boundary walls. Early engagement can help address genuine concerns of neighbours and can improve the outcome of planning applications for both the applicant and the local community (NPPF, para 189).
- 2.5 Applicants should also consult with anyone with a freehold interest in their property and ensure that they have complied with their requirements.
- 2.6 Basement construction can be complicated and lengthy and may cause significant nuisance and disturbance for neighbours and others in the vicinity, due to additional traffic and to the noise, dust and vibration of construction itself. All construction work and demolition work should be in accordance with the Considerate Constructors Scheme standards <https://www.ccscheme.org.uk/>, Institute of Civil Engineering Demolition Protocol and to the Greater London Authority's best practice guidance: The Control of Dust and Emissions from Construction and Demolition July 2014 <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/control-dust-and>
- 2.7 Some of the main issues which should be considered to ensure construction works do not cause undue disturbance are set out below:

Traffic Management and Site Access - Traffic and access to the site should be managed to safeguard existing rights-of-way, minimise congestion, and consider the safety of other road users. Proposed vehicle movements should be identified and restricted or be able to accommodate smaller vehicles.

Parking and Use of the Highway - Arrangements for parking vehicles of site operatives and visitors must also be considered, as well as the location of items such as skips. The contractor must minimise the use of on street parking and obtain the permits and licences for various temporary uses of the highway. They will also be required to make good any damage to the highway they cause.

Handling Materials and Waste - The recycling and transportation of materials and waste resulting from excavation, demolition and construction works will be a particularly important consideration and applicants should consider how waste can be minimised and reused and recycled where possible.

Noise, Vibration and Dust - The contractor should put in place suitable measures to control the emission of dust and dirt during construction and ensure works will not generate noise audible at the site boundaries, outside of permitted working hours. Dust should be controlled at source by a continuous fine water spray. The perimeter of the site should be screened to a sufficient height to prevent the spread of dust. Applicants should refer to the Mayor of London's Best Practice Guidance on Control of Dust and Emissions from Demolition and Construction July 2014 <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/control-dust-and>

- 2.8 Applicants should provide evidence of consultation undertaken as part of the application. The council will consult neighbouring occupiers and amenity societies as part of the application process. When a planning application is submitted the Council will expect evidence to be submitted that adequate consultation with neighbours has been carried out.
- 2.9 Applicants should also liaise closely with neighbours throughout construction and notify them of forthcoming noisy works/ changes in programme.

Advice for neighbours

- 2.10 If your neighbour is planning a basement development you should ask them for a timetable to show what works will be happening and when, and ask them to notify you when particularly noisy works may occur. You may also need to instruct a Party Wall Surveyor (see Appendices 2 and 3 for further information); the party undertaking the development should be responsible for the costs incurred.

Commenting on a Planning Application:

- 2.11 The council invites written comments as part of its consideration of planning applications. You can support or object to a proposal. Planning applications can only be decided on the basis of planning policy, such as:
- The design & appearance of the proposal; Lambeth Local Plan Policies Q11 and Q22
 - The impact on the significance of a heritage asset; Lambeth Local Plan Policies Q20, Q22 and Q23
 - The impact on amenity, such as noise generated by plant and machinery; Lambeth Local Plan Policy Q2
 - Issues regarding trees and landscaping; Lambeth Local Plan Policies Q9 and Q10
 - The impact on traffic, road access, parking and servicing (serving the completed development); Lambeth Local Plan Policy T8

- Whether Flood risk, ground conditions and land instability mean the development is not a suitable use of the site. Lambeth Local Plan Policies EN5 and EN6.

2.12 The Planning Authority cannot consider non-planning issues such as loss of property value, party wall, land or boundary disputes, the number of different construction projects going on at the same time, or issues controlled by other regulations such as building control. Whilst the council cannot refuse planning permission because construction works may cause noise and disturbance, mitigation measures should be put in place to reduce their impact. Noise and Disturbance is a separate legislative framework and comes under The Environmental Protection Act, this is not enforced by our Planning Enforcement Team but the Environmental Health department. The council as a whole also has a range of powers to take enforcement action on other issues (see Appendix 2 on role of other regulations and organisations).

Please note that the structural stability of buildings is covered by the Building Regulations and is not a material planning consideration. If there are neighbour concerns about structural impacts a Party Wall Surveyor should be instructed. If structures become dangerous Building Control should be contacted.

Pre-planning and Design Stage	<p>Get as much information as possible from the owner/applicant/site manager at this stage about - programme, visual/other impacts likely on your property.</p> <p>Understand temporary impacts – construction traffic, noise, vibration, dust.</p> <p>Understand likely permanent visual/other impacts on your property.</p> <p>How the temporary and permanent impacts could be minimised.</p> <p>Discuss any particular issues that you would like them to take into account.</p>
Planning Application Stage	<p>Comment on the proposals in the planning application in writing, keeping to planning policies and within the consultation deadline</p> <p>Negotiate the Party Wall agreement. Ensure that you engage a surveyor with experience of basement development. Please note that this is a separate regulation and process to both Planning Permission and Building Regulation compliance; the Local Authority has no involvement.</p>
Construction Stage	<p>Once work starts, contact the site manager in the first instance if any problems arise. You may wish to keep a photographic record and log of events if you have concerns.</p> <p>The site managers contact details should be clearly displayed on site.</p>
Contacts Construction and Post Construction	<p>Contact planning enforcement if you are concerned that the development is in breach of the approved drawings or any attached planning conditions. The council’s planning enforcement officers will investigate and can consider formal action if it is required.</p>

	<p>Environmental Health officers can take action if noise dust and vibration reach unacceptable levels.</p> <p>If you have problems with noisy building works you should contact Environmental Health.</p>
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- 2.13 Appendix 2 explains further the role of other regulations and controls relevant to a basement development.

3 Design Guidance

Basement footprint

- 3.1 Basement development should be subordinate in scale to the host building in order to comply with Policy Q11 of the Lambeth Local Plan.
- 3.2 For extensions to existing basements or the creation of new basement areas below and/or within the curtilage of the existing dwelling, the majority of original garden of the site should be retained. The total area of basement beyond the original footprint should be subordinate to the original footprint of the host building.
- 3.3 A basement and/or other subterranean structures should cumulatively occupy less than 50% of the original garden. Any more would adversely impact drainage to groundwater and would mitigate the harm otherwise caused to residents' living conditions or the harm to the character and appearance of the area. Limiting new basements "take" of the garden to 50% would keep the right balance between allowing sustainable development and protecting others and the environment from harm.
- 3.4 50% is a reasonable target figure to the extent that a basement should occupy space formerly undeveloped. Every location is different in hydrological detail, however, and there is some scope for site-specific criteria to be employed.

The depth of a basement

- 3.5 The depth of a basement will affect the impacts associated with basement construction, such as the amount of excavation waste from a proposal, increased potential to cause ground movement, potentially longer construction times, impact on neighbours, decreased levels of natural light and ventilation to basement areas, increased chances of coming into contact with groundwater and the need for energy-intensive construction techniques.
- 3.6 in light of these issues it is proposed that basements below existing properties should generally not exceed 1 storey - 3m floor to ceiling height. A basement below an existing basement/semi basement would result in a 2 storey basement and will be resisted. Please refer to Heritage Assets section for further guidance on basements affecting a listed building, locally listed building or a building in a conservation area.
- 3.7 For major commercial redevelopment sites, it may be acceptable to have a basement greater than one storey in height if robustly demonstrated via detailed evidence that there would be no significant impact upon the hydrology or the land stability of neighbouring

buildings, trees and other structures, and the design complies with all relevant guidance in the SPD.

Habitable rooms

- 3.8 The Council will not support habitable rooms (any room used or intended to be used for sleeping, cooking, living or eating purposes) and other sensitive uses or self-contained basement flats and other underground structures in areas with a high probability of flooding such as Flood Zone 3a and b. Outside of these areas, where basement accommodation is to provide living space, it will be subject to the same standards as other housing in terms of space, outlook, daylight and sunlight; along with appropriate flood mitigation measures in line with the Environment Agency Guidance. Suitable access should also be provided to basement accommodation to allow for an escape route to a floor above the flood level.

Character and appearance above ground

- 3.9 The external appearance of basements and associated structures must be of a high quality and should respect and respond positively to host buildings; streetscape and the wider context; surrounding heritage assets; and locally distinctive patterns of development and landscape.
- 3.10 Lightwells, railings, steps, plant, floor lights and other forms of lighting needs to be sensitively designed and discretely located in order to minimise their impact thereby ensuring that they do not contribute to visual clutter, introduce alien features into the streetscape, or interrupt the prevailing streetscape/garden rhythm.

Lightwells

- 3.11 New basement lightwell excavations should:
- minimise the size of any excavated area at the front or side;
 - be in keeping with the style and design integrity of the host building and wider locality;
 - minimise visual impact through good design (in many cases, especially heritage assets, this is likely to mean pavement grilles rather than balustrades); and
 - not reduce existing parking bays to below the minimum standard (where this occurs the council will seek the removal of the parking bay).
- 3.12 Where lightwells are required the most discreet location will generally be to the rear. Lightwells should be modest in scale and be located immediately next to the rear elevation to fully integrate with the host building. Any lightwells, stairs and other structures should be located close to the original footprint of building, to minimise disruption to the garden/open area.

Railings

- 3.13 The enclosure of basement areas and lightwells with railings or balustrades may be required on health and safety grounds and will require good design solutions. Railing enclosures to basement areas can be visually obtrusive in front gardens and will generally be resisted in favour of pavement grilles or glass paving.

- 3.14 The use of pavement grilles in place of open lightwells with railings often provides a more discreet intervention. Grilles should be constructed flush with the ground level, designed to be visually unobtrusive, to allow light and ventilation into the basement. Soft landscaping and the reinstatement of a front garden boundary treatment (where they have been lost) will minimise visual impact from the street.

Steps/staircase

- 3.15 Access steps should be avoided at the front of properties where it is not characteristic of the street.

Landscaping

- 3.16 The landscape integrity of front gardens should be retained and, where necessary, additional planting used to screen new works. Basement areas must be accessible from within the premises for maintenance purposes.

Shop conversions

- 3.17 Like all basement conversions, the appropriateness of residential accommodation in the basements of converted shops will be reliant on the quality of the accommodation, amenity, outlook and daylight and sunlight and external design. The excavation of forecourts into large 'basement area' is unlikely to be supported if the retained shop front is left 'floating' incongruously above. Large front lightwells of this nature offer little amenity value to residents and can harm visual amenity.

Existing basement areas

- 3.18 The loss or alteration or roofing-over of existing basement areas will be resisted. On many buildings with existing semi-basements, the front garden levels often ramp up to screen historic semi-basement accommodation. The re-grading of front gardens to slope to a basement, or the excavation of a new basement area, may improve daylight to basement accommodation but such excavation may be inappropriate if exposing the lower levels of the building and changing the levels have an adverse impact on the property or street scene. Excavations and re-grading of rear gardens is less sensitive but still needs careful consideration, to ensure the host building retains its design integrity and boundary walls are maintained. Simple layouts are most effective. Where existing basement area railings are of interest they should be sympathetically retained. Historic examples on neighbouring buildings may inform the design of new work.

Garden setting

- 3.19 Gardens are important for visual amenity, recreation, habitats and natural drainage. The value of rear gardens is increased where they collectively make up a large tract of green space. Front gardens and forecourts are particularly important as they provide a landscaped setting for the building and mediate between public and private space. Gardens are particularly important to the character and appearance of conservation areas, their settings and the settings of heritage assets generally. There is a presumption in favour of retaining existing trees of value.

- 3.20 Extensions below front gardens that prohibit soft landscaping from thriving will be resisted. If basement works will affect protected trees the Council's formal consent may be required.

Floor/Pavement lights

- 3.21 Floor/pavement lights, glazing set into the ground should be kept flush with the ground level, be close to the building, proportionally small and sympathetic with the host building. Floor/Pavement lights that are located away from the building line such as in the middle of private gardens can be visually harmful and when illuminated from below can result in light spillage and, are generally unacceptable.

Character and appearance of below ground elevations

- 3.22 The development of a basement and the introduction of lightwells will result in an area of exposed elevation and will usually mean new window or door openings. Any exposed area of basement should:
- be subordinate in height and width to the host building;
 - respect the original design and proportions of the building, including materials, its architectural period and style;
 - have windows the same as the host building and align with them; and
 - the width and height of windows should be no greater than those above.

Plant

- 3.23 Plant and machinery should be fully integrated within the extension and any external visual impact should be minimised to avoid harm to the appearance of the building. There should be no plant on the front elevation. All plant should have well designed screening to minimise visual impact and to help to reduce the adverse impact of noise, including pumps.

4. Heritage Assets

Conservation Areas

- 4.1 Conservation Areas (CA), are areas identified as areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance. Lambeth currently has 62 conservation areas. Conservation Area Statements/appraisals provide detailed guidance on individual conservation areas in the borough. The conservation statements include character appraisals, management proposals and guidance, which seek to actively manage change within Lambeth's CAs.
- 4.2 Basement development and associated structures may affect the character and appearance of a conservation area. Applications for basement development within a CA should have regard to Policy Q22 Conservation Areas and should preserve and enhance the character and appearance of the area.
- 4.3 In addition to the design considerations applicable to all development outlined in the above sections, the impact on the character and appearance of a basement proposal should be set out in a Heritage Statement in the planning submission. The Heritage Statement should explain in detail the significance of the building and the impact of the proposals on that significance. In line with NPPF any proposed harm to significance will require a clear and convincing justification.

- 4.4 Residential gardens make a substantial positive contribution to the significance, setting, character and appearance of the heritage assets. Disruption of these spaces should be minimised as far as possible, such as locating rooflights and lightwells close to the original building and minimising the amount of excavation to enable level access into the garden; unless it is demonstrated that there is no harmful impact arising from the excavation.
- 4.5 Proposals that will have a harmful impact will be required to meet the relevant tests set out in paragraphs 131-134 of the NPPF.

Statutory Listed Buildings

- 4.6 Listed Building Consent will be required for new basements or extensions to existing basements to listed buildings where they affect the buildings special interest; even when planning permission is not required. Basement excavations under listed buildings will be assessed on a case-by-case basis.
- 4.7 Basements underneath and/or within the curtilage of listed buildings must be carefully sited and designed so as not to harm the special architectural or historic interest of the listed building or its setting. The main elements of listed buildings, which contribute to their significance, and which may be affected by basement excavations include: original or other important architectural features and built fabric, structural integrity, plan form and hierarchy of spaces. Most of Lambeth's listed buildings are Georgian or Victorian terraced townhouses or semi-detached houses and were designed with a clear hierarchy of floor levels with larger principal rooms at ground and first floor levels with generous floor to ceiling heights and decorative detailing. Where new development is deemed acceptable, the hierarchy of the floors levels should be respected, the floor to ceiling height should be subordinate to the floor above.
- 4.8 Where basements are deemed acceptable, the footprint and depth of new accommodation created by basement excavations and extensions should be proportionate to the overall size and hierarchy of spaces in the original building. Basement extensions should be no bigger than the existing/original footprint.
- 4.9 Design features that may otherwise be acceptable in a basement proposal may not be acceptable to a listed building or within its curtilage. Design considerations for development to a listed building or within its curtilage, in addition to those applicable in the previous sections of this guidance include:
- floor hierarchy and hierarchy of spaces including floor to ceiling heights
 - plan form, historic layout and circulation patterns of the original building
 - impact on significant historic fabric including footings and boundary walls
 - relationship of basement /basement extension to original building/ how the new basement is accessed both from within the existing building and externally.
 - scale of the building and its relationship to the surrounding area, especially the rear garden /the excavation of a rear patio area can cause harm to the setting of the garden.
 - setting of the listed building including gardens, trees and landscaping
 - works that involve the removal of fabric of heritage significance will be resisted.
- 4.10 In sites with generous gardens it may be acceptable to construct a modest basement extension close to the original building, provided it is structurally and visually independent of

the original building and does not harm the heritage significance of the listed building, including its garden setting.

- 4.11 In order to preserve historic circulation pattern, hierarchy of floor levels and historic structure/fabric, any connection between the original house and the basement to provide access to a basement should not be constructed within the original host building. Often the best place to form this access link is from the extension of an existing staircase, any later existing extension the building might have or a newly created extension (subject to it being of appropriate design and scale).
- 4.12 The lowering of floor levels to existing historic basements can harm the special architectural or historic interest of a listed building by virtue of detrimental impact on the historic fabric, floor hierarchy. The lowering of an historic basement will only be considered where all of the following points are met:
- no underpinning is required i.e. development is retained above footings
 - no significant harmful impact to fabric of heritage significance is demonstrated, such as the loss of historic joinery, flooring, the lowering of a chimney piece and elongation of the door architraves etc. to accommodate the lowered floor.
 - floor to ceiling heights remain sufficiently subservient to principal floor levels
- 4.13 Front vaults are a common feature of historic properties and their presence, along with other features such as coal holes should be retained. The impact of construction on features such as front entrance steps, crossovers, porches and porticos must also be considered as part of any proposal. Protection and reinstatement will be required.
- 4.14 The impact of the proposal on other heritage assets, including boundary walls and curtilage structures must also be considered at application stage. Listed structures and/or those which contribute to the character of conservation areas such as historic garden walls should be retained.
- 4.15 Structural integrity should be given careful consideration when dealing with listed buildings or buildings immediately adjacent to a listed building. Significant structural intervention which may be required as part of basement construction, could adversely affect historic fabric. The most straightforward structural method may not be appropriate and you should seek the advice of specialised conservation engineers. The impact of a proposal on nearby listed buildings will be assessed on the scale of any harm to the listed building and its setting as part of a Basement Impact Assessment and Construction Management Plan.
- 4.16 A contractor or consultant that has experience of working with historic structures should be involved in the design and construction of a basement involving a listed building.
- 4.17 If permission is granted for basement development for a listed building, details of how features of heritage significance will be protected during the construction process should be clearly set out in the Construction Management Plan.
- 4.18 Proposals that will have a harmful impact on Heritage Assets will be required to meet the relevant tests set out in paragraphs 131-134 of the NPPF.

Undesignated heritage assets: local heritage list

- 4.19 Buildings and Structures - Applicants will be required to provide a Heritage Statement for proposals affecting these assets.
- 4.20 Archaeology - Lambeth has 17 Archaeological Priority Areas (APAs), within which there is a likelihood of discovering surviving archaeological remains. Beyond these areas, there is still scope for the survival of significant archaeology.
- 4.21 The council will require applicants for proposals which involve excavation or ground works on sites of archaeological potential to submit an archaeological assessment and evaluation of the site, including an assessment of the impact of the proposed development.
- 4.22 Local historic spaces and designed landscapes - Applicants will be required to provide a site evaluation for their proposals.
- 4.23 Proposals that will have a harmful impact will be required to meet the relevant tests set out in paragraphs 131-135 of the NPPF.

5 Trees, landscape and biodiversity

- 5.1 Policies EN1, Q9 and Q10 requires new development to be designed positively, to integrate existing trees, retain and enhance existing planting and biodiversity value of the land. Basement extensions usually cover the footprint of the existing building, but some schemes extend below the garden. Basements should be designed to protect trees and the garden setting, protect and enhance biodiversity value, and ensure surface water drainage is maintained. To achieve this, adequate depth of soil must be provided above any basement.

Trees

- 5.2 Where trees are located within a development site, the appropriate arboricultural information should be obtained and applied to demonstrate that layouts have been informed by the use of site specific tree survey and tree constraints mapping information. Proposals for new development will be required to take account of not only existing trees within the subject site but also those situated on adjoining land that might constrain or otherwise influence development.
- 5.3 Development will not be permitted that would result in the loss of trees of significant amenity, historic or ecological/habitat conservation value, or give rise to a threat, immediate or long term, to the continued wellbeing of such trees.
- 5.4 Where trees are located within a development site, the proposal will be supported only where it has been demonstrated that:
- (i) trees of significant amenity, historic or ecological/habitat conservation value have been retained as part of the site layout;
 - (ii) the retained trees can be satisfactorily protected from construction impacts and site works during the development stage; and
 - (iii) the retained trees have been positively integrated, on a sustainable basis, as part of the site layout.
- 5.5 An Arboricultural report is required at application stage it should include the following:
- survey of all trees on, and adjacent to the site

- plan showing existing tree constraints overlain with the footprint of the proposed buildings
- identify trees proposed for removal and those to be retained along with justification for removal
- assessment of the impact of the development on the retained trees on and in adjacent site
- explanation of how retained trees will be protected during the construction phase, taking into account site logistics such as storage of building materials, location of site huts, access for piling rigs, removal of spoil from site etc.

The above tree survey and constraints mapping information should comply with the guidance and recommendations set out in the British Standard document, *BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'*

- 5.6 Following acceptance of a scheme, the retained trees will be subject to tree protection measures that will be a condition of the planning consent, to include a detailed Arboricultural Method Statement where appropriate.
- 5.7 It is likely that any application that will adversely impact upon the long term survival of trees and shrubs will be unacceptable. Where the removal of trees can be robustly justified, the council will usually require them to be replaced within the curtilage of the property, with the aim of replacing the canopy cover lost. Species selection should conform to the 'right tree, right place principle'.

Landscaping and biodiversity

- 5.8 Landscaping should be attractive and contribute to the character of an area, maximise the permeable surfacing of the site and enhance its biodiversity value. Planting should be sustainable and capable of surviving dry periods (potentially drought conditions) without supplementary watering.
- 5.9 For this reason, it is important that soil above any basement is directly connected with deeper soil beyond the basement in order to draw upon those resources in harsh conditions. Similarly, adequate natural drainage is required in order to ensure that the soil above a basement does not become waterlogged in times of high rainfall thereby preventing any adverse effect on planting within this space.

6 Sustainable design and construction.

- 6.1 The Lambeth Local Plan Policy EN4, seeks to minimise Lambeth's contribution to climate change. Developments are required to promote sustainable design through minimising their CO² emissions, maximising passive design and reducing the impact of construction through sustainable use of materials.
- 6.2 Where a basement is proposed as an extension to an existing building, applicants are encouraged to apply appropriate energy efficiency measures to the existing building in addition to providing energy efficient design of the proposal, to help offset the increased operational energy use of the building.
- 6.3 Applications should be accompanied by a Sustainability Statement addressing the following issues and demonstrate how the proposed design promotes sustainable design best practice, including:

- passive design measures including optimising the use of natural ventilation, lighting and passive cooling
 - energy efficiency of any artificial lighting, pumps and plant
 - sustainable drainage
 - sustainable material sourcing including potential for re-use and recycled content and avoiding high embodied carbon content
 - water sensitive design including water recycling and water conservation measures
- 6.4 The information provided should be proportionate to the proposed scale of development and its likely impact on, and vulnerability to climate change.
- 6.5 Non-residential basements will also require a pre-assessment demonstrating an ‘Excellent’ rating of the British Research Methodology (BREEAM) standards, or any future replacement standards will be met.

7 Managing Construction Impacts to neighbours

Construction Management Plan

- 7.1 A draft Construction Management Plan (CMP) will be required as part of planning application and a finalised CMP will need to be submitted as a pre-commencement condition. The CMP is not an alternative for a Basement Impact Assessment, which should address the construction stage as well as the completion of the basement, but is a separate document and should set out in detail how the basement contractor intends to construct the basement. It should include:
- detailed monitoring and proactive contingency plans, and discussion of how ground movements will be limited to ensure that previously agreed levels of damage are not exceeded;
 - evidence showing that the particular characteristics of the site (e.g. party wall footings, structural condition, groundwater conditions) are understood;
 - detailed method statements;
 - evidence of previous experience by the basement contractor and designers on similar projects in similar ground conditions;
 - an explanation of the provisions made for temporary and permanent support. The CDM and HSE are the regulatory authority for these matters.
 - provision for a suitably qualified and experienced engineer from a recognised relevant professional body to supervise the works;
 - discussion of how it is intended to minimise the impact of the development on the neighbours including a construction programme including a 24 hour emergency contact number along with the contact details for a site manager which must be clearly displayed on the site so adjoining occupiers know who to contact in the event of problems arising;
 - parking of vehicles of site operatives and visitors (including measures taken to ensure satisfactory access and movement for existing occupiers of neighbouring properties during construction);
 - locations for loading/unloading and storage of plant and materials used in constructing the development;
 - erection and maintenance of security hoardings (including interpretive displays and facilities for public viewing, where appropriate);

- measures to control the emission of dust and dirt, noise and vibration during construction both on and off site will be managed, inc. wheel washing facilities;
- a scheme for recycling/disposing of waste resulting from excavation, demolition and construction;
- programme timetable;
- construction vehicle routing;
- the numbers of and types of construction vehicle, site access and egress arrangements;
- temporary arrangements proposed for the highway to facilitate the works;
- an assessment of the structural impact on listed buildings and details of any removal of historic fabric;
- measures for the protection of listed buildings and particular features within them;
- identification of site specific risks, and discussion on how these have been or will be mitigated;
- the cumulative impact of construction traffic with that of other developments in the locality and details of participation in the relevant construction vehicle management groups;
- highway safety and congestion measures;
- measures to safeguard the amenity of surrounding residential and other sensitive uses;
- the notification of neighbours with regard to specific works;
- advance notification of road closures;
- details of measures to prevent the deposit of mud and debris on the public highway; and
- any other measures to mitigate the impact of construction upon the amenity of the area and the function and safety of the highway network.

7.2 Applicants should have the construction management plan reviewed by an suitably qualified and experienced engineer.

8. Assessing the impact of basement development

8.1 The impacts of basements on the geological, hydrological and hydrogeological environment, and to other properties, are of concern to both the Borough and local residents.

Flood Risk

8.2 The Borough is elongated north-south, with Streatham and Norwood comprising higher ground in the south and Kennington and Vauxhall lying within the natural floodplain of the Thames in the north. In terms of geology and topography, the north of the Borough is predominantly flooded by a thin cover of alluvium associated with the present course of the Thames. Further south the clay is overlain by sands and gravels representing the ancient alignment of the river, and the highest ground in the south is formed of exposed London Clay. A “lost” river, the River Effra, runs the full length of the Borough from north to south: it is fully enclosed within a culvert, but the former channel is evident in the topography of Lambeth and it continues to influence drainage patterns in the eastern half of the Borough.

8.3 The potential for flooding in Lambeth is closely related to its topography and the geology: For further information please refer to the Lambeth Preliminary Flood Risk Assessment (PRFA), Lambeth Strategic Flood Risk Assessment (SFRA) and Lambeth Surface Water Management Plan (SWMP), all available on the Lambeth website.

8.4 Policy EN5 seeks to minimise the impact of flooding in the borough. In determining proposals for basement and other underground development, the council will require an

assessment of the scheme's impact on drainage, flooding, groundwater conditions and structural stability. The assessment will be required to demonstrate that the proposal would not cause harm to the built and natural environment and local amenity and would not result in flooding or ground instability.

Sustainable drainage systems and water management

- 8.5 In the terms of Policy EN6 a Sustainable Drainage System (SuDS) is one, which utilises a 'management train' of drainage techniques used in series to mimic as closely as possible the natural site's processes, thereby mitigating and enhancing the development's impact on flood risk, water quality and habitat / amenity value. Further explanation of SuDS can be found in The SuDS Manual
http://www.ciria.org/Memberships/The_SuDs_Manual_C753_Chapters.aspx
- 8.6 To reduce the volume and rate of run-off from heavy rainfall the council will expect developments to utilise SuDS, such as green and brown roofs, rain gardens, green infrastructure and attenuation ponds, in line with the London Plan Drainage Hierarchy and National SuDS Standards.
- 8.7 All major developments within Flood Zone 1, all development within Flood Zones 2, 3a 3b, or where the development may be subject to other sources of flooding, will require a site specific Flood Risk Assessment.
- 8.8 Development proposals should:
- (i) maximise opportunities for restoring river channels, flood flow pathways and floodplains to their natural state and managing surface run-off above ground and as close to the source as possible to reduce flood risks downstream; and implement sustainable water management through SuDS;
 - (ii) provide compensatory storage to ensure that there is no loss in flood storage capacity where flood storage is removed, as set out in the Strategic Flood Risk Assessment (SFRA);
 - (iii) ensure that the layout and design does not have a detrimental impact on floodwater flow routes across the site;
 - (iv) demonstrate that there will be a net decrease in both the volume and rate of run-off leaving the site by incorporating sustainable drainage systems (SuDS) in line with the London Plan drainage hierarchy and National SuDS Standards to maximise amenity and biodiversity benefits and improve the quality of water discharges. Details submitted to the council to demonstrate compliance with this policy should follow the design principles within the National SuDS Standards and the current SuDS manual and guidance identified within the council's SFRA or Local Flood Risk Management Strategy (LFRMS);
 - (v) seek to improve the water environment in line with the requirements of the European Water Framework Directive 2000 and its associated legislation, and the Thames River Basin Management Plan;
 - (vi) minimise water consumption and the pressure on the combined sewer network, through incorporating water efficiency measures including rainwater harvesting, grey-water recycling and other innovative technologies where practical; and

(vii) demonstrate that the local water supply and public sewerage networks have adequate capacity both on and off-site to serve the development; where there is a capacity problem and improvements in off-site infrastructure are not programmed, the developer will need to demonstrate that the necessary improvements will be completed prior to occupation of the development.

Summary of the key issues for consideration

- 8.9 This section sets out the key impacts that basement development can have upon the built and natural environment, and neighbour amenity and should be addressed as a part of the BIA process.

Surface water flow and flooding

- 8.10 Basement construction may involve permanent (or temporary) diversion of surface water flows around the building and a loss of permeable ground which otherwise would have received and helped to store or remove rainfall from a site. Basement construction may lead to increases or decreases in surface water reaching the underlying ground, potentially affecting the way underlying groundwater behaves, both on the site and further afield.
- 8.11 A proportion of rainwater falling on permeable ground is absorbed by the soil which reduces the amount of water remaining on the surface that could contribute to flooding. Construction of a basement under a garden, will reduce the infiltration capacity of the ground surface.

Subterranean (groundwater) flow

- 8.12 A solitary, isolated basement, which intersects the groundwater table is unlikely to affect the groundwater flows in the wider area, the water will simply flow around the obstruction. The effects on water level are likely to be small and less significant than seasonal or other existing variations in the groundwater table.
- 8.13 However, locally, changes in groundwater level may occur. Immediately upstream of the development the groundwater level may rise, whilst immediately downstream the groundwater level may decline. The magnitude of the change in water level will be dependent on the geology of the aquifer, the size and orientation of the development, and the depth of groundwater in the aquifer.
- 8.14 If the basement is close to sensitive features which rely upon the current groundwater regime such as a well or a spring feeding a surface water feature, the effect of the groundwater taking a new route may result in reduced (or increased) flow to the well or spring. Similarly, a dormant spring may be reactivated or new springs may be activated when flow has been concentrated, causing groundwater to issue in a different location.
- 8.15 A large basement (or a series of adjacent, contiguous basements) would have a greater impact on the groundwater flow regime.
- 8.16 The shape of the resulting compound structure in relation to the groundwater flow direction and soil strata should be considered to assess whether any damming or corralling effect could potentially arise.

- 8.17 Section 3 of the Lambeth Surface Water Management Plan (SWMP) describes the potential groundwater flooding mechanisms and localities that exist in the borough.

Artificial ground (various locations)

- 8.18 In areas prone to groundwater flooding the groundwater level will be close to the surface under normal conditions, and at the surface under flood conditions. New basements constructed in such areas will not change that but they may make the flooding more frequent or the floodwater deeper. These areas are shown on Figure 3.5.1 in the SWMP. The introduction of a basement in areas where the groundwater is a little deeper, and there is no current susceptibility to flooding, may cause the groundwater level to rise adjacent to the structure such that that location becomes prone to groundwater flooding.
- 8.19 If groundwater in the Upper Aquifer were forced to find an alternative flow route past a basement causing an underground obstruction, that could cause the groundwater level within the zone encompassed by the new flow route to increase locally upstream of the obstruction, and to fall downstream. If the original groundwater level was close to ground surface (within a few centimetres), the impact of an underground obstruction could be to cause, or to increase, waterlogging of the ground upstream, or drying out of the soil downstream.
- 8.20 There are no known springs in the borough currently, but there have been springs in the past. It is conceivable that the introduction of a basement close to the location of a historical spring could cause a resurgence of flow.
- 8.21 Where there is a groundwater rise in areas of the borough underlain by Langley Silt, such that previously dry Langley Silt becomes wet, then there is a potential for subsidence. Minor outcrops of Langley Silt occur to the east and west of Stockwell.

Other Considerations

Ground and structural movement

- 8.22 Underground construction will always – inherently and unavoidably – cause some movement in the surrounding ground. A basement scheme that is poorly designed and/or constructed is likely to cause greater ground movement and have greater potential for damaging adjacent structures and facilities than would a well-designed and well-executed scheme for which ground movements have been minimised. Basements close to the public highway may also affect both buried services and the road surface. The implications of damage induced by ground movements, including the potential for legal proceedings arising from damage to third-party property and structures, are significant.
- 8.23 The foundations for a new basement or basement extension built under an existing structure will be deeper than that building's original foundations. In clayey soil areas in London, the problem of seasonal ground settlement "shrink" (in dry summers) and ground heave "swell" (in wet winters) is well known. It is appropriate to consider and discuss whether or not deepening the footings of the party wall could perhaps adversely affect the structure on the other side of the wall in a clay soil area. This is a site-specific factor that should be considered when planning, designing and implementing such works.
- 8.24 Foundation "stiffness" is the engineering term that describes the amount of settlement of a building due to the load from the building. A new basement or a basement extension built

under an existing structure will have deeper and hence, usually, stiffer foundations than that building's original shallow foundations. It is appropriate to consider whether or not stiffening the footings on one side of a party wall may adversely affect any other structure that shares the party wall.

- 8.25 Where abstraction (dewatering) from an aquifer, as part of the temporary or permanent works, is necessary to maintain dryness in the basement excavation, there is the potential for subsidence. Land stability is material planning consideration,; however, the stability of adjoining properties is a civil matter which must be resolved through Party Wall Agreements etc.

Slope Stability

- 8.26 A basement may result in instability affecting both that development and the land surrounding it, for example:
- increases in water content due to alteration of drainage may increase pore water pressures and decrease the strength of the soil material;
 - dewatering for basement construction may cause settlement;
 - removal of vegetation (including tree felling) results in less water extracted from a slope by plants and more water arriving on the slope because of reduced interception of rainfall, which may initiate movement through adverse changes in the pressure of water within the soil pores;
 - changes in loading (i.e. loading a slope or cutting into a slope) may cause activation of old slip surfaces; and
 - excavation in sand and gravel will be at more risk of local instability than clayey deposits particularly where groundwater is present.
- 8.27 The risk that instability poses will depend on a number of factors though its magnitude will primarily be influenced by the extent of ground that could be mobilised, what lies downhill of that ground, and what rests on or in the ground that could be mobilised. The risk will be specific to each site.

Other Factors

- 8.28 **Cumulative effects:** The granting of permission to one applicant for a basement often triggers similar applications from neighbours. The cumulative effect - if any - of several underground developments in a given street could potentially differ from the impact of the initial "pioneer" basement. It is therefore appropriate for applicants to consider whether, the layout and proximity of multiple basement schemes is important, especially any adjacent neighbouring schemes approved or built.
- 8.29 Groundwater flows through the gaps between basement structures and is prevented from passing beneath the houses with new basements. The effects are an increase in groundwater levels upstream of the structures, and a decrease downstream.
- 8.30 Where several basements effectively act as a single barrier to groundwater flow, the ground water will be forced to follow a longer flow path, with greater energy loss as a consequence, and therefore the changes in groundwater levels upstream and downstream will be greater. This can result in piping (*erosion in the ground, whereby areas of sub soil that have low resistance to water are slowly eroded by water movement. In the early phases of piping small pores are created, over time the constant flow of water enlarges the pores into larger*

channels, which can cause ground instability) and subsurface erosion of loose sandy material if present.

- 8.31 The extent to which the cumulative effects of basements may impact groundwater flow and levels is likely to depend on the properties of the aquifer materials. In highly permeable formations groundwater flow can easily be diverted around basements, ultimately leading to a groundwater level increase upstream, less than would be seen for less permeable materials.
- 8.32 For commercial basement developments, the Construction (Design & Management) Regulations (2015) (CDM) apply in full.
- 8.33 **Environment – waste to landfill and carbon emissions:** Basement excavation will produce a great volume of spoil and require a great volume of construction materials (notably concrete, which has a relatively high carbon dioxide emission rating). The excavated material is likely to include Made Ground and natural soils which will typically be removed from the site by lorry. These materials will typically be disposed of at a suitable landfill site unless measures are taken to treat and re-use elsewhere. As a rough estimate, a basement of 150m³ (for example 10m length by 5m width by 3m depth) would generate in the order of thirty lorry loads, assuming a lorry is carrying one 6m³ skip per load. The environmental “footprint” of a basement project is therefore not trivial, and should be viewed in the light of the borough’s environmental and sustainability policies.
- 8.34 **Nuisance:** In the context of basement construction, the use of lower energy techniques or quieter equipment can reduce the potential for noise and vibration. Examples include:
- Hand digging using a spade instead of an excavator may be an option for underpin excavation;
 - using quieter piling plant such as specifically silenced bored piling rigs or push-in sheet piling rigs;
 - using splitting techniques rather than sawing or hammering techniques when trimming concrete or masonry.
- 8.35 Dust can be reduced through the use of lower energy techniques though it can be further reduced by spraying of water or filtering air extraction ducts.
- 8.36 In all cases construction practices should be carried out safely.
- 8.37 **Damage to adjacent structures** – Applicants need to consider the risks of subterranean development on nearby statutory listed structures and infrastructure
- 8.38 In many cases, an adjacent property may directly adjoin another and the two buildings may share a common party wall. In other situations, neighbouring buildings may not share a party wall, but may still lie within the potential zone of influence of the subterranean development works. Structural damage resulting from activities on a neighbouring site may be due to changes caused by a number of effects including ground movements during excavation, heave, foundations at different levels and settlement of the new build due to changes in loading, but the actual nature and extent of the damage will be specific to the affected structure.

- 8.39 Basement construction will always cause some movement in the surrounding ground. The area affected could be a distance away equal to four times the depth of excavation, with the impact diminishing with distance from the excavation. It is these ground movements which result in structural damage.
- 8.40 In a residential street with houses close together there will always be a risk of some damage to the adjacent buildings. In practice structural damage is rare, and damage is usually limited to minor cracking which can be readily repaired.
- 8.41 The precise level of movement can be fairly well predicted but the degree of cracking and damage can only be estimated and requires engineering judgement; it is not something which can be codified.
- 8.42 Most of the movements will occur during the works, but in clay soils some movement can occur for several years after completion of the works.

How much damage is acceptable?

- 8.43 A method of categorising the risk of damage can be undertaken using the Burland Scale Methodology, which has been used by the Building Research Establishment and the Institution of Structural Engineers, London as well as other Inner London Boroughs. The classification system of the scale is based upon the ease of repair of visible damage.
- 8.44 There are three broad categories
- Visual appearance or aesthetics
 - Serviceability and function, and
 - Stability
- 8.45 We would recommend that anything above category 1 (very slight) (*Fine cracks that are easily treated during normal decoration. Damage generally restricted to internal wall finishes. Close inspection may reveal some cracks in external brickwork or masonry. Typical crack widths up to 1mm*) will not be acceptable and that mitigation will be required.

For statutory listed buildings anything above Category 0 (Negligible) (Hairline cracks. Less than 0.1mm) will not be acceptable and that mitigation will be required.

Classification of visible damage to walls with particular reference to ease of repair of plaster and brickwork or masonry

Category of Damage	Normal degree of severity	Description of typical damage	Approximate crack width (mm)
0	Negligible	Hairline cracks	Less than 0.1 mm wide
1	Very slight	Fine cracks that are easily treated during normal decoration. Damage generally restricted to internal wall finishes. Close inspection may reveal	Typical crack widths up to 1 mm

		some cracks in external brickwork or masonry.	
2	Slight	Cracks easily filled. Redecoration probably required. Recurrent cracks can be masked by suitable linings. Cracks may be visible externally and some repointing may be required to ensure weather tightness. Doors and windows may stick slightly.	Typical cracks are up to 5mm
3	Moderate	The cracks require some opening up and can be patched by a mason. Repointing of external brickwork and possibly a small amount of brick work to be replaced. Doors and windows sticking. Service pipes may fracture. Weather tightness often impaired.	Typical crack width are 5-15mm or several > 3 mm
4	Severe	Extensive repair work involving breaking out and replacing sections of walls, especially over doors and windows. Windows and door frames distorted, floor sloping noticeably ¹ . Walls leaning ¹ or bulging noticeably, some loss of bearing in beams. Service pipes disrupted.	Typical crack widths are 15-25 mm, but also depends upon the number of cracks.
5	Very severe	This requires a major repair job involving partial or complete rebuilding. Beams lose bearing, walls lean badly and require shoring. Windows broken with distortion. Danger of	Typical crack widths are greater than 25mm, but depends upon the number of cracks.

		instability. Typical crack widths are greater than 25mm, but depends upon the number of cracks.	
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Note: ¹ local deviation of slope, from the horizontal or vertical, of more than 1/100 will normally be clearly visible. Overall deviations in excess of 1/150 are undesirable.

9 Basement Impact Assessment

- 9.1 All applications for basement development (whether new build or extension to an existing building), which provides extra floor space below ground will require a Basement Impact Assessment (BIA).
- 9.2 The BIA methodology is a well-established and widely-utilised process of identifying, predicting, evaluating and mitigating relevant environmental effects of development proposals prior to decisions being taken.
- 9.3 The following section outlines the methodology for specifying and undertaking a BIA. The first four stages of the BIA process are those that would be expected to be undertaken by the developer. The scoping stage defines in further detail the matters to be investigated as part of the BIA process. This then leads to the site investigation and finally the impact assessment.

Non-technical Summary

- 9.4 Applicants will need to submit a plain English non-technical summary of the BIA to the Council and it should be in a format which can be easily understood by those with no technical expertise or knowledge. The summary should be in a clear format that allows officers to make relevant conclusions about what is contained within the BIA. The report should be supported by appendices containing the supporting information relied upon including details of all instructive investigations, conceptual ground models, basement and foundation design drawings.

Required qualifications

- 9.5 The details submitted are expected to be undertaken by professionals with no less than the following qualifications. The names of those involved and their qualifications should be provided:

Flood risk and drainage

- A Hydrologist or a Civil Engineer specialising in flood risk management and surface water drainage, with either:
- The "CEng" (Chartered Engineer) qualification from the Engineering Council; or a Member of the Institution of Civil Engineers ("MICE"); or The "C.WEM" (Chartered Water and Environmental Manager) qualification from the Chartered Institution of Water and Environmental Management.
- A Hydro-geologist with the "CGeol" (Chartered Geologist) qualification from the Geological Society of London.

Land stability

- A Civil Engineer with the "CEng" (Chartered Engineer) qualification from the Engineering Council and specialising in ground engineering;
- A Member of the Institution of Civil Engineers ("MICE") and a Geotechnical Specialist as defined by the Site Investigation Steering Group; or A Chartered Member of the Institute of Structural Engineers with some proof of expertise in engineering geology. With

demonstrable evidence that the assessments have been made by them in conjunction with an Engineering Geologist with the "CGeol" (Chartered Geologist) qualification from the Geological Society of London.

Stage 1 - Screening

- 9.6 The first stage in assessing the impact of a proposed basement development is to recognise what issues are relevant to the proposed site. Such as those highlighted above.

Stage 2 - Scoping

- 9.7 The scoping stage requires applicants to identify the potential impacts for each of the matters of concern identified in the screening stage. To undertake the scoping stage of the BIA process, the applicant needs to have some information on the specific project as well as the site. The type of information required at this stage is the same as the list for screening except that at the scoping stage more detailed information is needed. This may involve some preliminary data collection and field work.

Stage 3 - Site investigation and study

- 9.8 The third stage is site investigation. Using the scope from Stage 2, a site investigation can be designed specific to the site and to the particular development proposed.
- 9.9 The BIA site investigation is usually wider than that of a typical site investigation, which is primarily concerned with soil and groundwater conditions, and which usually takes place within the site boundary. The degree of investigation for a BIA varies depending upon the matters of concern identified in the screening and scoping stages, and is therefore dependent on the location of the proposed basement within the borough, its size and setting in relation to the existing development on the site and its relationship to adjacent properties including their basements and nearby features of importance.
- 9.10 The assessment should also make allowance for existing works that are post planning but yet to be executed.
- 9.11 The data and information collected in the site investigation is analysed and interpreted by the applicant's specialist, to provide baseline data which, in the next stage of the BIA, can be used in order to make an assessment of the potential impacts identified through the scoping exercise.

Stage 4 - Impact assessment

- 9.12 A BIA describes the impacts of the project on the environment by comparing the present situation (the baseline) with the situation as it would be with the basement in place; that is, after construction.
- 9.13 The BIA should describe, quantify, and then aggregate the effects of the development on those attributes or features of the geological, hydrogeological and hydrological environment which have been identified (in the Scoping stage) as being potentially affected; i.e. assess cumulative effects.
- 9.14 A damage assessment with reference to the Burland categories should form part of the impact assessment.

9.15 Attributes applicable to the conditions in LB Lambeth are listed below:

- Surface (hydrological) flow
 - Rate of runoff
 - Loss of permeable area
 - Direction of overland flow
 - Stream hydrograph
 - Soil moisture
 - Frequency of surface flooding
 - Sediment transport (erosion and siltation)
- Subsurface (groundwater) flow
 - Groundwater levels
 - Direction of groundwater flow
 - Range of seasonal fluctuation in groundwater levels
 - Spring hydrographs
 - Soil moisture
 - Water quality
- Slope stability
 - Slope angle
 - Moisture content
 - Porewater pressure
 - Stiffness
 - Compressibility
 - Bearing capacity (strength)
 - Atterberg limits

9.16 The BIA should include:

- Detailed site specific analysis of hydrological and geotechnical local ground conditions;
- Analysis of how the excavation of the basement may impact on the water table and any ground water flow, and whether perched water is present;
- Details of how flood risk, including risk from groundwater and surface water flooding has been addressed in the design, including details of any proposed mitigation measures;
- Details of measures proposed to mitigate any risks in relation to land instability;
- Demonstration of how cumulative effects have been considered;
- A comprehensive non- technical summary document of the assessments;
- Identify the location of the development in relation to an aquifer or a water course;
- Explain how it will impact on flooding and drainage including measures to reduce the risk of flooding to the proposed basement and neighbouring properties;
- Provide details of on-going drainage measures and their maintenance regimes;

- Appropriate basement construction methods to maintain structural stability of the statutory listed host building and neighbouring statutory listed properties;
- Details of noise, disruption and vibrations to neighbouring properties would be minimised during the construction process;
- Programme duration;
- Construction vehicles' routing and movements;
- The number and types of construction vehicles;
- Site access and egress arrangements; and
- Temporary arrangements proposed for the highway.

9.17 If the consequences are not acceptable, mitigation should be incorporated into the proposed scheme and the changes in attributes re-evaluated and the new net consequences determined. Any mitigation measures incorporated into the proposed scheme should be described in the BIA report with details of how they reduce and/or alter the impact of the proposed basement on the surrounding environment. An applicant may have to revisit the extent of their proposals or indeed decide not to proceed where consequences are not acceptable.

9.18 For example, an applicant proposing a basement will carry out Stages 1 to 3 (Screening to Site Investigation) but find out in Stage 4 (Impact Assessment) that the predicted level of risk to neighbouring statutory listed buildings will exceed the permitted Burland category. In that case, the applicant would incorporate mitigation into the proposed scheme so as to bring the residual risk down to the acceptable level. If all stages of the BIA are completed before the proposal is discussed with the Council then the mitigation measures should already be incorporated.

Audit

9.19 The final stage in the BIA process would be the review by LB Lambeth of the results. The Council would not undertake technical evaluation of submissions, but would use an audit approach to check the adequacy of a BIA. Thus the submission would be audited against the criteria for a BIA which is set out in this SPD.

Appendix 1

Lambeth Residential Basement Study - Arup (April 2016)

Executive Summary

1. With a shortage of development land and rising land values in the London Borough of Lambeth, the development of basements in residential areas is likely to become a popular way of gaining additional space in homes.

Basements can affect the environment and nearby structures in a number of ways. The impacts of such development to the geological, hydrological and hydrogeological environment, and to other properties including listed buildings, are of concern to both the Borough and local residents.

2. While small, isolated basements may have little impact, the cumulative effect of incremental development of basements in close proximity, particularly when these are large, potentially creates a significant impact.

3. Extending downwards beneath an existing building, particularly old, masonry-built properties that were not designed to contemporary engineering standards, is a challenging and potentially hazardous undertaking. The work involved is not trivial and it merits input from experienced professional design engineers and contractors, including underpinning specialists. However, for residential basement developments typical project values tend to be relatively small and the fees for design become a higher proportion of the total cost than for large commercial schemes. There is a need therefore to ensure that corners are not inadvertently cut.

4. LB Lambeth policy on basement development is contained within Policies Q11 and EN5, which do not specifically deal with issues related to the geological and hydrological conditions and particular characteristics of the Borough. This study has been carried out with the objective of providing the Borough with technical guidance to assist them in framing revisions to the planning policy.

5. The London Borough of Lambeth includes some varied topography and landscape, and a diverse mix of building and development types including 2,500 listed buildings. The Borough is elongated north-south, with Streatham and Norwood comprising higher ground in the south and Kennington and Vauxhall lying within the natural floodplain of the Thames in the north. In terms of geology and topography, the north of the Borough is predominantly floored by a thin cover of alluvium associated with the present course of the Thames. Further south the clay is overlain by sands and gravels representing the ancient alignment of the river, and the highest ground in the south is formed of exposed London Clay. A "lost" river, the River Effra, runs the full length of the Borough from north to south: it is fully enclosed in culvert, but the former channel is evident in the topography and it continues to influence drainage patterns in the eastern half of the Borough.

6. The potential for flooding in Lambeth is closely related to the topography and the geology: in the north of the Borough the risk is associated with the Thames while in the central area, which is largely underlain by terrace gravels, groundwater flooding due to surcharge of shallow perched aquifers is more likely. Flooding due to overloaded stormwater sewers following intense rainfall is a risk throughout the Borough.

7. This study reviews the physical geography, geology, hydrology and hydrogeology of the Borough of Lambeth in relation to the risks posed by Role of Various Parties development of shallow residential basements. Basement construction methods are reviewed, together with the potential impacts of uncontrolled basement construction upon the environment and neighbouring structures

including listed buildings. With good design and appropriate consideration of geology and hydrogeology such development can usually be accommodated without increasing the risks.

8. A planning policy framework which recognises the risks and sets appropriate engineering standards for applications should provide the safeguards necessary to minimise adverse impacts. This study concludes that the current planning policy in Lambeth should be strengthened in respect of basement development, and recommends the introduction of a Basement Impact Assessment (BIA) approach to assessing and mitigating ground-related risks. The requirement for a BIA might be introduced in a Supplementary Planning Document.

9. The BIA would follow the format of the Environmental Impact Assessment (EIA) process. The process would be developer-led, with LB Lambeth providing guidance in the earlier stages and using an audit approach to check the adequacy of the BIA.

Appendix 2

Other regulations and controls involved in basement construction

Planning is only one part in the process of creating basements. In reality there are a number of legislation and controls involved in the construction of a basement.

The assessment and enforcement of applications for subterranean development involves a wide range of other legislation. This includes primary legislation (Acts of Parliament e.g. the Environmental Protection Act 1990, Highways Act 1980, Control of Pollution Act 1974), secondary legislation (Statutory Instruments, including Regulations and Orders e.g. the Control of Asbestos Regulations 2012) and statutory guidance and Codes of Practice. It is important to note the different consents and licenses that must be applied for before you start works.

Building Regulations

Building Control enforces minimum standards associated with engineering design and structural stability and ensuring construction work undertaken is professional and competent.

In addition to planning permission, Building Regulations approval is required for the excavation or enlargement of a basement, and also to convert a cellar into habitable accommodation. Due to the complexity of the Building Regulations as they affect basements, you should contact the council's Building Control service or an approved inspector in the first instance to discuss your project.

Highways

The Highways Act ensures the efficient and safe use of roads and highways. You will need a licence under the Highways Act for any activities on the highway, such as the placing of skips, the transfer of spoil, or erection of hoardings. Where a new basement extends underneath the public footway or carriageway, the new basement design (or structural alterations in the case of an existing basement) will require Technical Approval to ensure the designs have been undertaken by a suitably qualified engineer and take into account current highway loading standards. Permission is also required for suspension of parking bays or road or footway closures. For most streets you should contact the council as the highway authority but on main roads you may need to obtain relevant permissions from Transport for London. The council will also be able to let you know if you live on a main road which is the responsibility of Transport for London.

Environmental Health (Noise, Vibration and Dust complaints)

Environmental Health enforces issues related to the Environmental Protection Act and Control of Pollution Act (such as noise and dust). The provisions of the Control of Pollution Act (1974) are the principal mechanisms by which construction noise and vibration is controlled. These are separate from the planning system. Control of dust in the construction phase is dealt with by the Environmental Protection Act (1990). The Environmental Protection Act 1990 enables the council to impose requirements to prevent or abate nuisance from dust and smoke.

Freeholder permission and other Codes and Guidance

If you are not the freeholder of the property, then landlord permission is likely to be required. You should always contact the freeholder prior to submitting an application and ensure you have complied with their requirements before submitting an application

Other

It will also be the applicant's responsibility to ascertain whether any electric, gas, water or telecommunications services will be affected by works and notify relevant parties of any impacts.

See contacts list at Appendix 3 for detail of who to contact in relation to different issues.

THE PARTY WALL ACT

The Party Wall Act is in place to control development on each side of a party wall and maintain its integrity and function. If you are undertaking a basement excavation it is likely that you will need a Party Wall agreement with your neighbours. You must give notice to adjoining owners at least one month before works start. The provisions of the Act apply when an adjoining owner is carrying out work in the ground within three metres of the party wall or within six metres if it falls below a line drawn at 45 degrees from the bottom edge of the foundation of the wall. Further advice on the Party Wall Act for both owners undertaking works and adjoining occupiers can be found on the planning portal.

The Party Wall Act is civil legislation and this is therefore always a private matter between neighbours which cannot involve the council. The Act can be used by neighbours to address issues where damage occurs and their Party Wall surveyor can request that a sum of money is held in 'escrow' in case of any damage (meaning a sum is kept as security for example in case there is a need to step in and complete the works to a party wall to repair damage).

This is always a private matter between neighbours which does not involve the council.

It is advisable to seek the advice of a structural engineer with experience on party wall matters. The Professional Institutes listed in the appendices can provide details of engineers with party wall expertise.

Where problems or disputes arise, Common Law can also provide some protection for occupiers of properties in the vicinity of a development, allowing them to seek injunctive relief or damages through the courts. Neighbours adversely affected by a basement development should take legal advice about their potential remedies.

Appendix 3

Contacts

	Issues considered	Contact
Lambeth Planning	Queries related to planning policy and process and planning applications	Telephone: 020 7926 1180 Email planning@lambeth.gov.uk
Lambeth Planning Enforcement	Reports of unauthorised development or breach of planning permission or conditions	Telephone: 020 7926 1185 Email planningenforcement@lambeth.gov.uk
Lambeth Building Control or Approved Inspector	Queries related to current Building Regulations applications	Telephone: 020 7926 1278 buildingcontrol@lambeth.gov.uk
Lambeth Building Control	Queries related to building control process Reports of dangerous structures Non- compliance with Building Regulations	Telephone: 020 7926 1278 buildingcontrol@lambeth.gov.uk
Lambeth Highways	Works to highways, licensing of skips, temporary structures licence (hoarding, scaffolding etc.)	www.lambeth.gov.uk/highways-licences-guide
Transport for London (Red Routes)	Advice on works affecting roads managed by TfL	tfl.gov.uk/info-for/urban-planning-and-construction/highway-licences
Lambeth Environmental Health	Complaints related to noise, vibration and dust	Telephone: 020 7926 5000
Lambeth Environmental Services	Contaminated land	sustainability@lambeth.gov.uk
Structural/Civil Engineers: Professional Bodies	Advice on Finding an engineer and party wall surveyor	Institution of Structural Engineers www.istructe.org/contact Telephone: 020 7235 4535 Institute of Civil Engineers subs@ice.org.uk Telephone: 020 7222 7722

Conservation accreditation register for Engineers	A list of engineers accredited in building conservation	Conservation Accreditation Register of Engineers www.istructe.org/about-us/organisation-structure/subsidiary-organisations/conservation-accreditation-register-for-engineers
Health and Safety Executive	Information and advice on managing sites safely including developers responsibilities and duties in relation to health and safety.	www.hse.gov.uk/contact/index.htm
Historic England	Advice on archaeological potential for sites	historicengland.org.uk/services-skills/our-planning-services/greater-london-archaeology-advisory-service/
Thames Water	Advice on sewers and drainage	www.thameswater.co.uk
London Underground/Network Rail/Crossrail	Advice on development above or near to London Underground infrastructure/Railway or Crossrail infrastructure	Network Rail National Helpline Telephone: 03457 11 41 41 www.networkrail.co.uk Crossrail safeguarding: www.crossrail.co.uk

Appendix 4

Sources of further information.

ARUP London Borough of Lambeth Residential Basement Study Report of Findings April 2016

CLG National Planning Policy Framework (2012)

CLG Guidance on Party Wall Etc. Act 1996

Considerate Contractors' Scheme www.ccscheme.org.uk

Mayor of London Best Practice Guidance on Control of Dust from Demolition and Construction

The SuDS Manual

National SuDS Standards

London Plan Drainage Hierarchy

Strategic Flood Risk Assessment (SFRA)

Local Flood Risk Management Strategy (LFRMS)