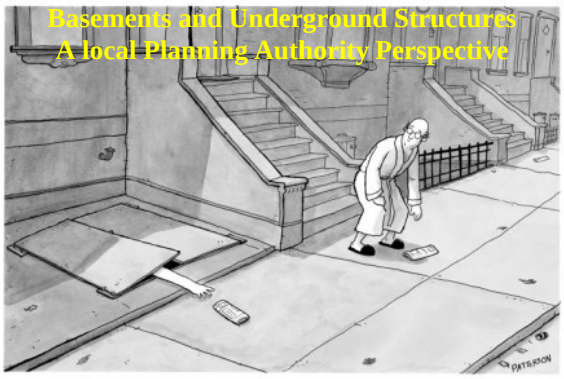
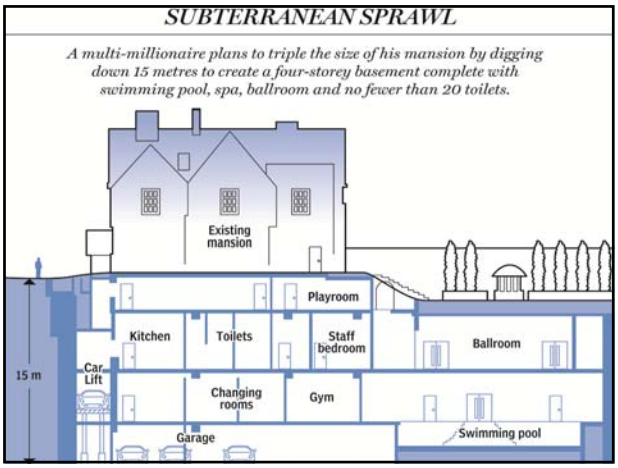
Basements and Underground Structures
A local Planning Authority Perspective



John Walker
19th March 2014 Operational Director Development Planning

Basements applications on the rise – popular way to extend for domestic properties

The Issue – Basements are attracting increasing numbers of complaints



Issues commonly raised

1. Cracks in party wall
2. Noise
3. Dust
4. Mess made of the street during works
5. Insufficient space to accommodate vehicles on road – eg Mews
6. Inconsiderate Builders
7. The length of time basement extensions take to do
8. The number taking on place at once on any particular street
9. Damage to road because of weight of the vehicles taking away spoil
10. Impact on trees
11. Uncharacteristic in historic areas – listed buildings/conservation areas
12. Light pollution from rooflights
13. Biodiversity and drainage implications – likelihood of flooding

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TRENDS – Growing Demand

Basement extensions in Westminster in the last five years

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6 Trevor Place

City of Westminster

5 Chester Row

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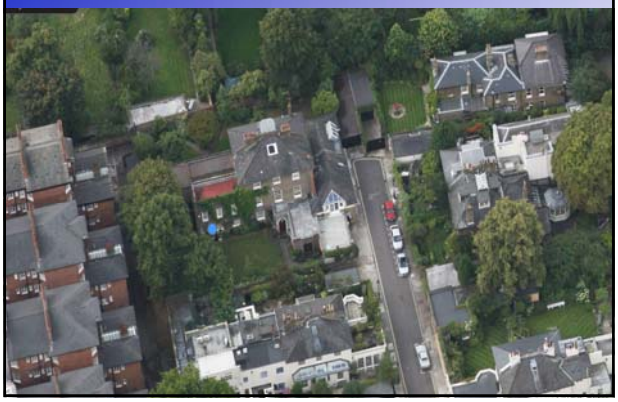
Getting rid of the Spoil

Narrow streets and entrances pose problems

5 Melina Place

5 Melina Place

5 Melina Place



5 Melina Place

All works must go through the garage door

Attracting Media Attention

Making objectors aware of the limited controls planning authorities have

1. Permitted Development Rights
2. Party Wall Act
3. Evidence base needed to turn down basements/devise new policies
4. Planning mainly addresses the before and after – not during

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Need for new Policies and Procedures for handling basement works

Our Procedures – Talk to your Neighbours

Applicants for basement excavation should consult with all neighbouring occupiers themselves prior to submitting an application, and provide them with details showing structural matters have been considered by a chartered civil engineer, including the impact on stability of adjoining properties, on drainage, nearby trees and on boundary walls. You should provide evidence that this has been done with your application.

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The application - Our validation requirements

Completed Application Forms

Drawings and plans including site plans, existing and Proposed sections and elevations and landscaping plan.

Design and Access Statement (including information on visual impact, access landscaping and sustainable design).

Structural Statement prepared and signed off by a Chartered Civil Engineer (MICE) or Structural Engineer (MI Struct.E) including supplementary geo-hydrology reports where this is not being provided by the same engineer.

Construction Management Plan

CiL liability assessment

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The application - Our validation requirements

Other information that may be required

Flood risk assessment

Arboricultural report and tree survey showing location of trees on or within the vicinity of the site, an assessment of the effect of the proposal on the trees, and details of tree protection.

Noise Assessment where external plant is proposed

Heritage Statement

Archaeological Desk top assessment

Site Waste Management Plan

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Validation requirements – Nice to Have

Evidence of engagement with adjoining occupiers and a schedule and timetable of works.

Sustainable Design

All new basement development must include sustainable design to show it is contributing to the mitigation of, and adaptation to climate change, as well as minimising carbon emissions.

Applicants must take into account

• **Choice of materials**, including re-use and recycled content;

• **Optimising natural ventilation and lighting** (also having regard to the potential visual impact);

• **Energy efficiency** of any lighting, pumps and plant;

• **Water conservation**, especially where swimming pools are proposed;

• **Sustainable Urban Drainage** and minimising flood risk

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Trees Gardens and Landscape

Private garden land contributes to the character of Westminster.

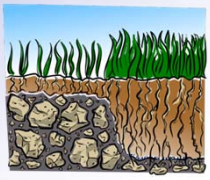
•Important visually
•Supports biodiversity, trees, green corridors and networks.
•Helps reduce water run-off from hard surfaces, allowing rain to drain naturally into the subsoil, which helps reduce flood risk and the effects of climate change.
•Subterranean development can result in the loss of important trees and landscaping.

SOIL DEPTH ABOVE BASEMENTS

Minimum 1.0m soil (plus drainage layer) sufficient to support trees.

1.5m (plus drainage layer) will be required in other circumstances pending basement size and tree.

Tree Protection details also required



Trees Gardens and Landscape

Retain trees and landscaping that contribute to the character of the area

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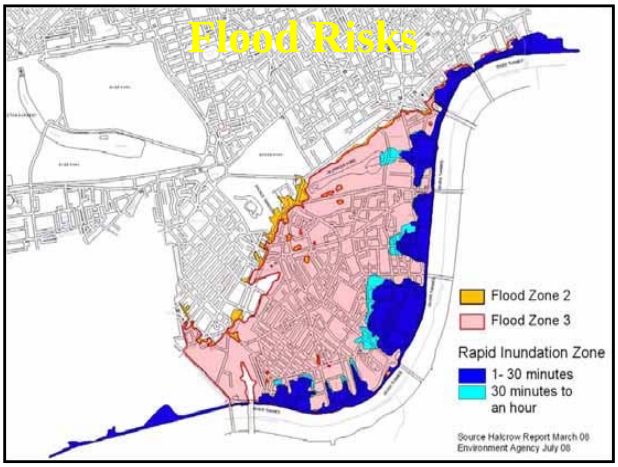
Flood Risks



Flood Risks

Cellars and basements can be vulnerable to flooding. Such flooding can come from a number of different sources, including the overflowing of drains and nearby watercourses, groundwater flooding and surface water flooding.

Flood Risks

INFORMATION REQUIREMENTS

A site-specific Flood Risk Assessment required in a flood risk areas showing

•the development will avoid increasing flood risk for the site and beyond where possible will reduce flood risk

•A structural methodology statement should include detailed site-specific analysis including analysis of the upper aquifer, where it exists and how the basement may impact on any groundwater flow.

•Include details of how flood risk and surface water flooding has been addressed in the design and demonstrate how cumulative effects have been considered.

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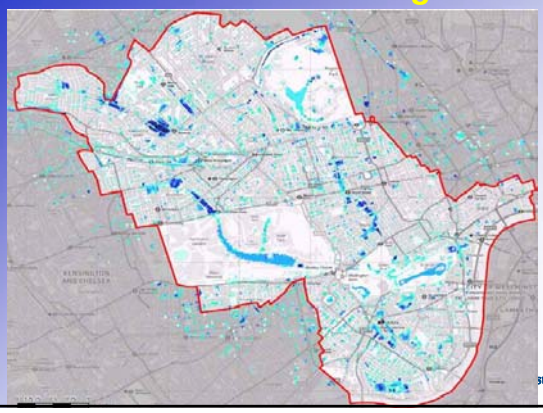
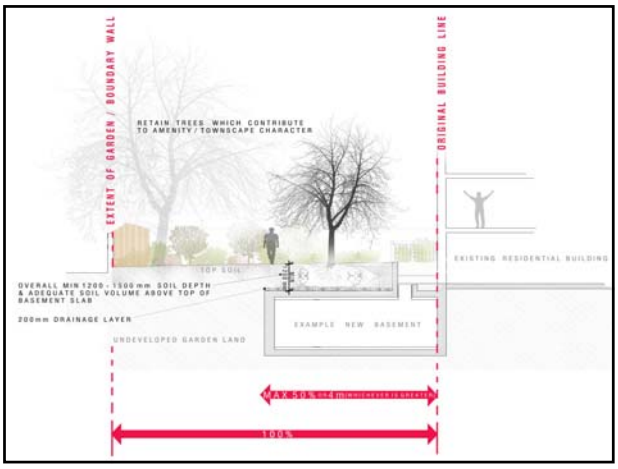
Flood Risks Critical Drainage Areas



FLOOD RISK	SELF-CONTAINED BASEMENT DWELLING (or other highly vulnerable use)	BASEMENT EXTENSION TO EXISTING DWELLING (or new build incorporating extension)	Flood Risk Assessment required
FLOOD ZONE 3 (RAPID INUNDATION ZONE)	Not acceptable	May be acceptable but required to pass the Exception Test*	**Yes**
FLOOD ZONE 3 (outside tidal breach rapid inundation zone)	May be acceptable but required to pass the Exception Test*	May be acceptable but required to pass the Exception Test*	**Yes**
FLOOD ZONE 2	May be acceptable BUT required to pass the Exception Test.	May be acceptable but consider flood resistance and resilience measures	Yes
FLOOD ZONE 1 (rest of Westminster)	May be acceptable	May be acceptable	No, but flood risk and ground conditions as well as design to minimise flood risk should be addressed in SMS
CRITICAL FLOOD LOCATIONS	May be acceptable but consider flood resistance/ flood resilience	May be acceptable but consider flood resistance/ flood resilience	Yes

*The exception test (as set out in the National Planning Policy Framework), means that development may be acceptable if it can demonstrate wider sustainability benefits to the community and that it will be safe for its lifetime without increasing flood risk elsewhere.



Land Stability, Ground Conditions and Structural Issues

POLICY FRAMEWORK

The National Planning Policy Framework states planning should ensure that development is suitable for its site.

It states that development should take into account ground conditions and land instability and that adequate site investigation information, prepared by a competent person should be provided to demonstrate these impacts have been understood.

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Land Stability, Ground Conditions and Structural Issues

Applications for subterranean development must be supported by info to show

•**Professional experts** have considered the structural stability of neighbouring buildings will not be put at risk by proposals.

•**Chartered Structural or Civil Engineer** used who a track record of successful basement projects in central London. This engineer should form part of the initial design team and should undertake an assessment of local ground conditions, water movement and drainage of the site at the design stage of proposals.

• **The structural statement** should set out a site specific structural design solution which explains how the excavation, demolition, and construction work (including temporary propping and other temporary works) can be carried out. This will include both a desktop analysis and on-site investigation and monitoring, including trial pits and opening up works to investigate the existing structure.

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Land Stability, Ground Conditions and Structural Issues

A structural methodology statement will be required to be

prepared and signed off by a Chartered Civil Engineer (MICE) or Structural Engineer (MI Struct.E) or a structural engineer with expertise in historic buildings (CARE accredited) where heritage assets are affected.

The Council will not approve a specific engineering solution. It is required to demonstrate that the issues have been considered and the risk is reduced.

Applicants should use a qualified contractor with responsibility for the sequencing, temporary works and quality of the construction itself.

A structural engineer should be retained during the construction stages and monitor the works regularly.

Land Stability, Ground Conditions and Structural Issues

The Council may apply conditions to require works to be monitored by a structural engineer.

The structural integrity of the development during construction is not controlled through the planning system but through Building Regulations and the Party Wall Act.

Applicants with any concerns with regards to structural stability of a development site during the course of works, to contact the Building Control

Heritage Assets

Listed building consent will be required for basement excavations or extensions to existing basements to listed buildings even where planning permission is not required.

The Council will consider

•**the desirability of preserving listed buildings,** their settings and any features of special architectural or historic interest.

•**have regard to the impact on the significance of the building** including any original or important features and fabric, structural integrity, plan form and hierarchy of spaces.

•**Structural integrity** of the listed building or buildings immediately adjacent to a listed building. Significant structural intervention which may be required as part of basement construction, which could adversely affect historic fabric. The most straightforward structural method may not be appropriate and you should seek the advice of specialised conservation engineers for alternative methods.

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Heritage Assets

INFORMATION REQUIREMENTS

An assessment of the significance of the affected heritage asset should be submitted with an application including any contribution made by their setting. T

This should outline the potential impact of the proposal on the significance heritage asset to inform the City Council's own assessment of any conflicts between the proposal and the conservation of the heritage asset.

Detailed plans should be provided which identify the extent of any demolition proposed and clearly identify all features of interest and confirm their retention.

The Structural Methodology Statement and Construction Management Plan should consider the impact on historic fabric and how any delicate fabric or features

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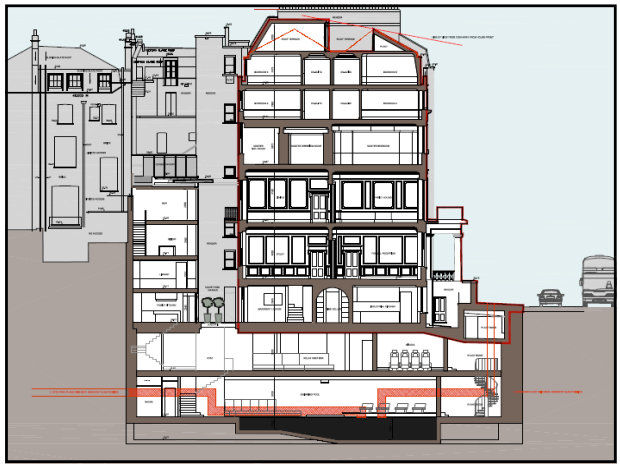
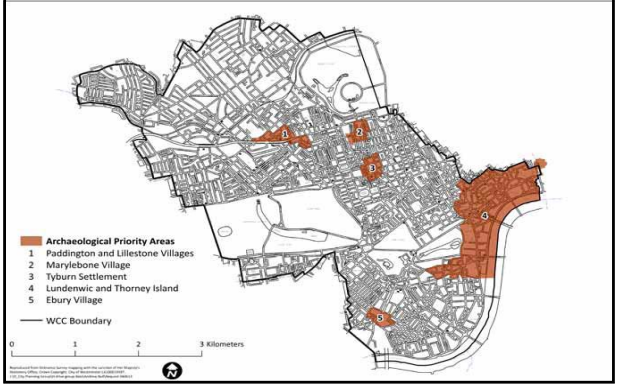
Protecting Listed Buildings



Archaeology



Excavation works may reveal remains of archaeologic interest.

Within the five named areas, or sites with known archaeological potential, a desk Based archaeological assessment, prepared by an accredited archaeological consultant, will be expected as part of any planning application involving below ground excavation. The Council may add conditions to any planning permission requiring on site archaeological investigation, recording and subsequent publication of the results.

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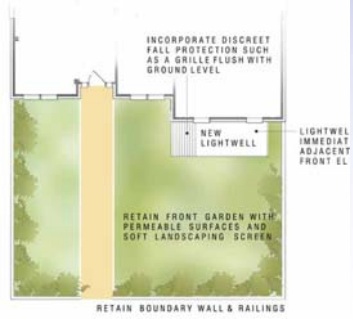
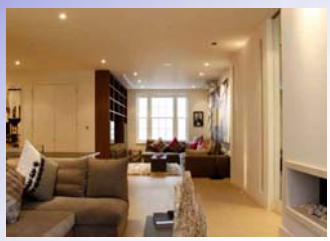
Visual Impact

The Design and Access Statement along with detailed drawings and sections should demonstrate that proposals will have an acceptable visual impact, taking into account the impact on the garden setting and the setting of Heritage Assets. The impact of alterations and extensions on garden character should be included within the Design and Access Statement and full landscaping details provided as part of the application.



Amenity Standards

If basements are to be used for residential accommodation, they should have adequate headroom, daylight and ventilation.



Construction Management Plans

A Construction Management Plan is required as part of planning application submission and should provide the following details (where appropriate):

(i) a construction programme including a **24 hour emergency contact number**;

(ii) **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);

(iii) **locations for loading/unloading** and storage of plant and materials used in constructing the development;

(iv) **erection and maintenance of security hoardings** (including decorative displays and facilities for public viewing, where appropriate); (v) wheel washing facilities and measures to control the emission of dust and dirt during construction; and

(vi) **a scheme for recycling/disposing of waste** resulting from excavation, demolition and construction

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Development Under the Highway/Vaults

Some properties in Westminster have front vaults, which may extend under the pavement. Basement development works can involve the extension of these areas.

- Utilities and services
- cables, pipes and sewers.

Minimum vertical depth below the footway or carriageway of 900mm and the extent of the new or extended basement area does not encroach more than about 1.8m under any part of the adjacent highway. This zone also allows for essential street furniture (e.g. signage, lighting etc.) to be located in the highway where necessary).

5 Chester Row

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Construction Methodology Considerations

A. **A thorough desk study** to include the site history, age of the property, site survey, geology, historic river courses and underground infrastructure, including utilities services, drains and tunnels. This should also identify other basement developments in the area, so that cumulative effects can be considered

B **An appraisal of the existing structure** including drawings to show the arrangement of the existing structures.

C **A site investigation with trial pits** to show the existing foundations and the material they are founded on, for all walls which may be impacted by the proposals. If groundwater is present, the levels should be monitored for a period of time.

Construction Methodology Considerations

D. **Details of the engineering design** to show the following:

- ground conditions and groundwater
- existing trees and infrastructure
- drainage
- flooding
- vertical and horizontal loading
- structural engineering general arrangement and details; drawing showing underpinning, piled wall etc.

E. **An analysis of the Upper Aquifer** (when it exists) and how the basement may impact on any groundwater flow.

Construction Methodology Requirements

F. **Details of flood risk, surface water flooding, critical drainage areas** explaining how these are addressed in the design. If the basement is in Flood Zone 3, a full flood risk assessment should be carried out.

G. **An assessment of movements expected** and how these will affect adjoining or adjacent properties. This needs to include both short term and long term effects. The design and construction should aim to limit damage to all buildings to a maximum of Category 2 as set out in CIRIA Report 580.

H. **Details of sequences of construction and temporary propping** to demonstrate how the basement can be built to prevent movements exceeding those predicted.

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Draft Subterranean Development Policy

A new policy to cover basement development to residential buildings or buildings originally built for residential purposes.

Draft Subterranean Development Policy

1. **Minimum of 1.2m soil depth - s**atisfactory landscaping, permeable surfacing.

2. **Maximum Garden Coverage - no than 50% or 4m (whichever is the larger) of garden land.** No loss of trees of townscape, ecological or amenity value;

3. **Maximum of one subterranean storey** below the lowest original floor level, unless exceptional circumstances have been demonstrated;

4. **Naturally ventilated and lit** wherever practicable, especially where habitable accommodation is being provided;

5. **No adverse visual impact** on the existing building, garden setting or the surrounding area, ensuring lightwells, plant, vents, skylights and means of escape are sensitively designed and discreetly sited; and

6. **Must protect heritage assets** including significant archaeological deposits and, in the case of listed buildings, not unbalance the buildings' original hierarchy of spaces, where this contributes to significance.

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Draft Subterranean Development Policy

Applicants will be required to demonstrate that basement development will

- **safeguard structural stability**
- **not increase flood risk** on the site or beyond.

All applications will be accompanied by a

- **Structural methodology statement and appropriate self-certification.**
- **Construction management plan** demonstrating adherence to the Council's Code of Construction Practice will also be required.

Non-residential development adjoining residential properties and new build residential incorporating basements will also be subject to the criteria set out above where there is potential for similar impact on those adjoining properties.

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Conclusion: Basement developers have a bad image problem

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Basements Contractors – Improve your Image