

16 Alma Street

Basement Impact Assessment

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Background

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Issue History

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1. Introduction

1.1. Existing structure

Alma Street is a 3-storey load bearing masonry structure in the Kentish Town area of Camden, London.

The front of the building follows a traditional form, and forms part of a terraced block. There are Party Wall structures on both sides.

Timber floor joists are assumed to span front to back, with load bearing stud walls at upper levels, and a transfer masonry arch at lower ground level.

The lower ground floor level has a light-well on the front side to Alma Street and access to the garden - which is at the same level- at the rear. There is also an existing lean-to extension to the rear of the building.

The building is assumed to have traditional shallow corbeled footings bearing on London Clay.

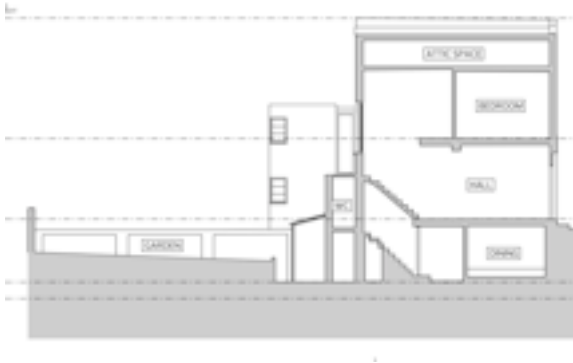


Figure 1: Section through existing structure

1.2. Proposed works

All the existing superstructure is to be retained. It is proposed to remove the existing lean-to extension at the rear and lower the level of the lower ground floor by 0.5m. A new 2 storey masonry and glass extension will then be built at the rear of the property.

It is proposed the ground floor will be lowered by breaking out and excavating under the existing floor.

Existing masonry walls may require underpinning depending on the depth of the foundations exposed during excavation. This will be done sequentially in 1m sections.

A new concrete floor will then be installed at the lower level. The floor will prop the basement walls at either side of the property.

Temporary works may be required to support the retained masonry walls and floors during construction.

The basement will be waterproofed using a proprietary system specified by the Architect.

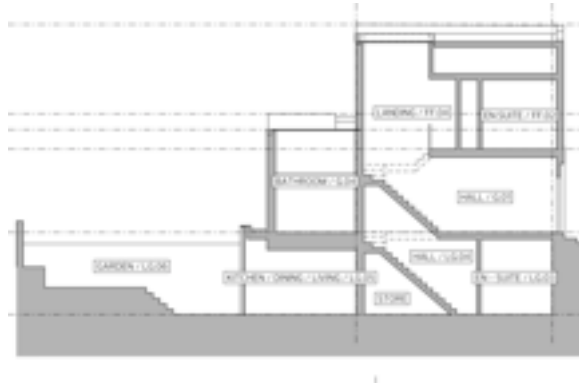


Figure 2: Section through proposed structure

1.3. Basement Impact Assessment

Planning guidance states that a site specific Basement Impact Assessment (BIA) is required for development where either a new basement or extension to existing basement is proposed.

The purpose of this BIA is to assess the potential impact of the development on the local surface water and groundwater environment and of possible impacts on the structural stability of the building and its neighbours.

The BIA methodology process includes the following steps:

- Initial Screening: to identify whether there are matters of concern.
- Scoping: to further define the matters of concern identified in the screening stage.
- Site investigation and study: to establish baseline conditions.
- Impact assessment: to determine the impact of the proposed basement on baseline conditions.
- Final review and decision making by approving authority.



2. Stage 1 . Screening

The first stage in assessing the impact of any proposed basement development is to recognise what issues are relevant to the proposed site and to identify those matters of concern which should be investigated further.

We have reviewed Camden Planning Guidance document CPG 4 on assessing the impact of basements and have therefore used the relevant headings and assessments that have been adopted.

This Basement Impact Assessment has been carried out based on a visual site inspection and a desk study. Trial pits will be dug prior to starting work on site to confirm assumptions made at this stage.

The screening flow charts cover the following topics:

- Groundwater flow (Table 1)
- Land stability (Table 2)
- Surface flow and flooding (Table 3)

2.1. Table 1 . Groundwater flow

	Question	Impact	Source/Comment
1a	Is the site located directly above an aquifer?	No	From the EA aquifer maps, the site is not on a known aquifer. From adjacent boreholes (TQ28SE523/4/5; TQ28SE24) the site lies in an area where the London Clay outcrops the surface.
1b	Will the proposed basement extend beneath the water table surface?	Unknown	From adjacent boreholes (TQ28SE523/4/5) standpipe water levels have been measured between 2.25m and 9.08m below ground level. New basement level is at approximately 0.5m below existing lower ground floor level - which is at 3.05m below ground level.
2	Is the site within 100m of a watercourse, well (open/disused) or potential spring line?	Yes	From EA maps the site is not over a groundwater source protection zone. From "The Lost Rivers of London" the site is approximately 50m from a disused watercourse.
3	Is the site within the catchment of the pond chains on Hampstead Heath?	No	From Figure 14 the site is not within pond catchment areas.
4	Will the proposed basement development result in a change in the proportion of hard-surfaced/paved areas?	No	The overall extent of hard- standing will not change. The proposal occupies a similar footprint to both the existing building and proposed scheme.
5	As part of the site drainage, will more surface water (e.g. rainfall and runoff) than at present be discharged to the ground (e.g. via soak-away and/or SUDS)?	No	Initial review suggests that because the overall extent of hard-standing will not change then surface water and runoff will remain the similar to that at present.
6	Is the lowest point of the excavation (allowing for any drainage and foundation space under the basement floor) close to, or lower than, the mean water level in any local pond (not just the pond chains on Hampstead Heath) or spring line?	No	There are no local ponds.



2.2. Table 2 . Land stability

	Question	Impact	Source/Comment
1	Does the existing site include slopes, natural or manmade, greater than 7°? (Approximately 1 in 8).	No	There is a change in level between the pavement at the front of the property and the garden at the rear, but this change in level is formed by structure, rather than any sloping ground.
2	Will the proposed re-profiling of landscaping at site change slopes at the property boundary to more than 7°? (Approximately 1 in 8).	No	Minor alterations to site levels at rear garden, but changes in levels will not increase slope angles.
3	Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°? (Approximately 1 in 8).	No	There are no significant artificial slopes or cuttings in the neighbouring land.
4	Is the site within a wider hillside setting in which the general slope is greater than 7°? (Approximately 1 in 8).	No	There are no significant artificial slopes or cuttings in the neighbouring land.
5	Is the London Clay the shallowest strata at the site?	Yes	From local boreholes the London Clay is likely to be the shallowest strata.
6	Will any trees be felled as part of the proposed development and/or are any works proposed within any tree protection zones where trees are to be retained?	No	New extension to be in the same location as the removed structure. 3 trees on site to be retained.
7	Is there a history of seasonal shrink- swell subsidence in the local area, and/or evidence of such effects at the site?	No	No evidence of shrink- swell subsidence on site.
8	Is the site within 100m of a water-course or a potential spring line?	Yes	From EA maps the site is not over a groundwater source protection zone. From "The Lost Rivers of London" the site is approximately 50m from a disused watercourse.
9	Is the site within an area of previously worked ground?	No	There is no history of ground improvements or worked ground.
10	Is the site within an aquifer? If so. will the proposed basement extend beneath the water table such that dewatering may be required during construction?	No	The site is not located within an aquifer. It is yet to be determined if the new basement level will extend beneath the water table.
11	Is the site within 50m of the Hampstead Heath ponds?	No	Site is approximately 1500m from the ponds.
12	Is the site within 5m of a highway or pedestrian right of way?	Yes	The front of the site has a light well adjacent to Alma Street.
13	Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	No	Not significantly. The foundations to 17 and 15 Alma Street are assumed to remain at their existing level and so there will be an approximately 0.5m difference in levels across this boundary.
14	Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?	Unknown	From site observations site not close to any above surface infrastructure. Proximity to any underground tunnels not ascertained.



2.3. Table 3 . Surface flow and flooding

	Question	Impact	Source/Comment
1	Is the site within the catchment of the pond chains on Hampstead Heath?	No	From Figure 14 the site is not within pond catchment areas.
2	As part of the proposed site drainage, will surface water flows (e.g. volume of rainfall and peak run-off) be materially changed from the existing route?	No	The overall extent of hard- standing will not change. The proposal occupies a similar footprint to the existing building and landscaping.
3	Will the proposed basement development result in a change in the proportion of hard surfaced / paved external areas?	No	The overall extent of hard- standing will not change. The proposal occupies a similar footprint to the existing building and landscaping.
4	Will the proposed basement result in changes to the profile of the inflows (instantaneous and long-term) of surface water being received by adjacent properties or downstream watercourses?	No	The overall extent of hard- standing will not change. The proposal occupies a similar footprint to the existing building and landscaping.
5	Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream water courses?	No	No significant change to landscaping at rear garden.
6	Is the site in an area known to be at risk from surface water flooding, or is it at risk from flooding, for example because the proposed basement is below the static water level of a nearby surface water feature?	Unknown	<p>Site not in an area at risk of surface water flooding.</p> <p>Gulley at front lightwell likely to be surface water drainage. To be determined once work starts on site. Any existing drainage routes to remain unchanged.</p> <p>Static water level unknown.</p>



3. Stage 2 . Scoping

The purpose of scoping is to assess in more detail the potential impacts of the proposed scheme. Potential consequences are assessed for each of the identified potential impact factors.

No public consultation has been undertaken during this scoping exercise.

3.1. Groundwater flow

Matter carried forward	Scope of investigation and assessment
New basement level is at approximately 0.5m below existing floor level. It is unknown whether this will lower the basement into the water table.	The area and depth of structure extending into the ground is unlikely to adversely affect ground water flows. No further assessment is required.
From "The Lost Rivers of London" the site is approximately 50m from a disused watercourse.	Distance from the watercourse is large enough to not pose any significant risk. The area and depth of structure extending into the ground is unlikely to adversely affect ground water flows. No further assessment is required.

3.2. Land stability

Matter carried forward	Scope of investigation and assessment
London Clay is likely to be the shallowest strata at the site.	The area and nominal depth of structure extending into the ground is unlikely to pose any significant risk of instability. No further assessment is required.
From "The Lost Rivers of London" the site is approximately 50m from a disused watercourse.	The area and depth of structure extending into the ground is unlikely to adversely affect stability. Distance from the watercourse is large enough to not pose any significant risk. No further assessment is required.
The site within 5m of a highway or pedestrian right of way.	Slope stability within this area is unlikely to be affected by lowering the floor level by 0.5m: the remediated retaining wall will be designed and constructed to address the potential for local ground movements and mitigate impacts on adjacent structures. No further assessment is required.
It is unknown whether the site is over (or within the exclusion zone of) any tunnels, e.g. railway lines	Very unlikely to be an issue as excavations are of a nominal depth. No further assessment is required.

3.3. Surface flow and flooding

Matter carried forward	Scope of investigation and assessment
New basement level is at approximately 0.5m below existing floor level. It is unknown whether this will lower the basement into the water table.	The nominal increase of depth of structure extending into the ground is unlikely to increase any risk of flooding. No changes to existing drainage routes. No further assessment is required.



4. Stage 3 . Site investigation and study

As no further assessment was deemed required at the scoping stage no site investigation has been carried out for this project.



5. Stage 4 . Impact assessment

As no further assessment was deemed required at the scoping stage no impact assessment has been carried out for this project.



6. Conclusion

The following section summarises the findings based on the 3 topics outlined at the screening stage.

This Basement Impact Assessment has been carried out based on a visual site inspection and a desk study. Trial pits will be dug prior to starting work on site to confirm assumptions made at this stage.

6.1. Groundwater flow

The area and depth of structure extending into the ground is unlikely to adversely affect ground water flows.

The site is not above any known aquifers.

The potential impact of the proposed lowering of basement level on ground water flow and nearby structures or environmental features is considered negligible.

6.2. Land stability

Slope stability within this area is unlikely to be affected by lowering the floor level by 0.5m: the remediated retaining wall will be designed and constructed to address the potential for local ground movements and mitigate impacts on adjacent structures.

The potential impact of the proposed lowering of basement level on ground movement and slope stability is considered negligible.

6.3. Surface flow and flooding

The immediate site is not at risk from surface water flooding. The proposed development and basement extension lie mostly within the existing building footprint.

The nominal increase of depth of structure extending into the ground is unlikely to increase any risk of flooding.

The potential impact of the proposed lowering of basement level on surface water flow and local flooding risk is considered negligible.

