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Consideration of requirement for a Basement Impact Assessment

Prepared by

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Having worked through the guidance contained within CPG4, it is apparent that a full BIA is not required for this particular development. This is an existing 2 story house in a terrace of different properties. It is proposed to construct a buried reinforced concrete structure below this building, extending to the front and rear for lightwells, for use as additional residential accomodation.

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The following tables relate to

Camden Planning Guidance 4 – Basements and Lightwells. STAGE 1 SCREENING REPORT

Section 1 Subterranean (ground water) flow screening chart

1a: Is the site located directly above an aquifer?	No: Property is founded on essentially impermeable London Clay – based on local knowledge and geological maps See attached appendix for 'Lost Rivers of London', 'Surface water features map' and geology.
1B: Will the proposed basement extend beneath the water table surface?	No: See Q1 – Also see the accompanying soils report. Although some water from seepage was detected, this was not considered to be a water table.
2: Is the site within 100 m of a watercourse, well (used/disused) or potential spring line?	No: The property is between Broadhurst Gardens and Compayne Gardens,to the South of West Hampstead tube station. The attached soil report confirms that there are no nearby water courses – see item 6.3
3: Is the site within the catchment of the pond chains on Hampstead Heath?	No. See OS map on page 2 of appendix.
4: Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	No: the front garden is already paved for use as a parking area. The rear garden is paved over the area of the proposed basement. The hard surfacing will remain unchanged.
5: As part of the site drainage, will more surface water (e.g. rainfall and run-off) than at present be discharged to the ground?	No: No additional surface water will be generated as the proposed basement is underground. Any underground surface water flow is already blocked by the existing

	retaining wall and the negligible permeability of the clay soils.
6: Is the lowest point of the proposed 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: Surface Water Features Map and Lost Rivers Map in the appendix show that no features are near to the property. This is a built up area of Victorian properties, many of which already have basements.

Section 2 Slope Stability Screening

1: Does the existing site include slopes, natural or manmade, greater than 1 in 8?	No: See the attached Slope Angle Map in the appendix and the widely spaced contours on the O S map. The ground slopes at approximately 2 degrees in the immediate area.
2: Will the proposed re-profiling of landscaping at site change slopes at the property boundary to more than 1 in 8?	No: The landscaping will remain as existing.
3: Does the development neighbour land, including railway cuttings and the like, with a slope greater than 1 in 8?	No
4: Is the site within a wider hillside setting in which the general slope is greater than 1 in 8?	No: It is a residential area with very little slope to the adjacent ground / roads.
5: Is the London Clay the shallowest strata in the area?	Yes: The clay extends 'to depth' in the area as is shown on the local Geological Map. See our Impact Assessment at the end of this document and the attached soils report. Calculations for similar schemes have estimated that ground heave might be in the order of 10 mm's for single story basements. We have done a number of single story basements in clay with the reinforced concrete ground slab bearing straight onto the clay and have not experienced issues with differential movement once they are complete.
6: Will any trees be felled as part of	No: although some shrubs will be removed the proposed

the proposed development and / or any works proposed within any tree protection zones where trees are to be retained?	basement is approximately 10 metres away from the nearest False Acacia. A mature Holly bush is growing in the front garden which may need to be removed as part of the works. The guidelines of BS5737:2005 'Trees in relation to construction – Recommendations' will be followed during the works, to protect all mature trees.
7: Is there a history of seasonal shrink – swell subsidence in the local area and / or evidence of such effects at the site?	No: The subject building and its immediate neighbours show no signs of local subsidence.
8: Is the site within 100 m of a watercourse or a potential spring line?	No: Nothing is shown on local maps (see appendix) – or from local knowledge. The property is founded in impermeable London Clay away from any significant leakage resulting from sand or gravel layers.
9: Is the site within previously worked ground?	No
10: Is the site within an aquifer?	No: See answer to item 8.
11: Is the site within 50m of the Hampstead Heath Ponds?	No: See OS Map in the appendix.
12: Is the site within 5 m of a highway or pedestrian right of way?	Yes. The front of the existing property is 7.9 to 7.6 metres from the back of the public pavement line. The new basement will project 2.5 metres forward of the existing building line, meaning that the new basement will be 4.6 metres at its closest point. See our Impact Assessment at the end of this document.

13: Will the basement significantly increase the differential depth of foundations relative to neighbouring properties?

No: The two trial holes show existing footings of 830 and 900 depth. The underside of the proposed basement is 3.3 metres below the external ground level and so the step is only typically 2.45 metres down. Our experience of constructing single story basements in clay soils is that this change in level does not cause problems with differential movement, between neighbouring properties.

14: Is the site over (or within the exclusion zone of) any tunnels, e.g. railway lines?

No: The West Thameslink line is clearly marked on local maps and page 7 of the appendix. It is over 110 metres away from the property, measured from Ordinance Data maps.

Section 3 Surface flow and flooding screening flowchart.

1: Is the site within the catchment areas of Hampstead Heath?	No, see OS Map on page 2 of appendix.
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 area is currently hard standing and this will remain.
3: Will the proposed basement development result in a change in the proportion of hard / paved external areas?	No.
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 water courses?	No: The structure is fully underground in impermeable clay. Its footprint is largely under the existing building, which would have historically controlled surface water anyway.
5: Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No: See 4
6: Is the site in an area known to be at risk from surface water flooding, such as South Hampstead, West Hampstead, Gospel Oak and Kings Cross, or is it at risk from flooding, for example because the proposed basement is below the static water table of a nearby surface water feature?	Yes: The attached soils report schedules adjacent water features (6.3 Hydrology and Hydrogeology) and confirms nothing significant locally. The Environment Agency's 'Risk of Flooding from Rivers and Sea' map shows that this immediate area is not at risk from river flooding as it is beyond the flood

plain. See also the maps in the appendix. Records however indicate that surface water flooding took place in the road in 2002.

CONCLUSION

It can be seen from the above assessment, the attached soils report from Southern Testing and our attached structural drawings, that the proposed works are limited. All new works are confined to the footprint of the existing front property and below the party walls. As we have answered *Yes* to items 5 and 12 in Section 2, we attach a brief Basement Impact Assessment, following guidance given in Camden's Hydro-geological report by ARUP, at the end of this document.

Neighbouring properties will be protected by their rights under the Party Wall Act.

Works will be carried out by a Contractor with experience of work of this nature.

We consider that no further risk assessment is required and would comment that similar scale schemes in the Camden area have been approved with no additional assessment being required.

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Basement Impact Assessment in response to - **Section 2, Items 5, 6 and 12.**

Item	Area of concern	Impact Assessment
5: Is the London Clay the shallowest strata in the area? (Yes)	(i) Forming basements in London Clay can mean that adjacent properties could suffer from differential ground movement as their shallow foundations could be in clay that is affected by seasonal ground movement. (ii) As London Clay is impermeable Hydrological issues are not of concern in this case. (iii) Consideration must be given to the stability of the ground during the works and the long term stability of the neighbouring properties.	(i) We have done a number of basement designs in London Clay and our experience is that single story basements do not cause significant differential movement between the properties. (iii)The works will be done by reducing the ground level locally and then excavating down individually to cast metre wide sections of retaining wall in a hit and miss sequence. The retaining walls will be propped diagonally of the ground, until sufficient are cast to prevent any risk of lateral movement. This will minimise any disruption to adjacent properties. Although we will be underpinning the party walls, the existing foundations are almost 900 deep and so the differential step is not large. Particular care will be taken with drypacking between the old and the new as this is where problems can sometimes be introduced. A Hit and Miss construction sequence plan accompanies this report.

6: Is the site in an area known to be at risk from surface water flooding?	(i) Report of the Camden Floods Scrutiny Panel 2003 has recorded Priory Road as having been flooded with Surface Water in 2002.	(i) Flood damage will be resisted by carefully detailing of the construction to ensure water tightness. A system of pumps will be incorporated into the light wells to switch on in the event of a flood, to assist in removing any water ingress. It is 12 years since the single recorded event took place and so the risk is obviously very low.
12: Is the site within 5 m of a highway or pedestrian right of way? (Yes)	(i) Our works are being carried out in a front garden, that is adjacent to a pavement and hence a public road. (ii) Works close to the highway could have an impact on the stability of the highway or pedestrian right of way or on services in the public pavement.	(i) Our works are being excavated to a depth of 3.3 meters below the pavement and away from the highway. The new retaining wall will be 4.6 metres away from the pavement and so a 45 degree spread line from the excavation up to inside the pavement line can easily be achieved. The property will be enclosed with hoarding to prevent public access near to the excavation. Sequential excavation and propped formwork will be used to prevent undermining of the pavement. A drainage survey will have established the location of any pipework and CAT scans will be done before any excavation. (ii) The permanent works will have no impact on the local highway or pedestrian right of way once complete - see (i).