

## **1.0 Introduction**

- 1.1 Elliott Wood Partnership LLP were appointed in May 2010 by the property's owners, Mr. and Mrs Kropman, to provide structural engineering input on the construction of a new basement under the existing building.
- 1.2 A preliminary desk study has been carried out to establish the anticipated underlying ground conditions.

## **2.0 Description of Existing Building and Site Conditions**

- 2.1 54 Howitt Road is a late Victorian / early Edwardian terraced property in Belsize Park, north-west London. We understand that the building is not listed, but that it is within a Conservation Area.
- 2.2 The building is of traditional loadbearing masonry construction with timber floors and roof. The internal walls are a combination of masonry and timber studwork and there is accommodation on 3 levels plus a small localised cellar under the main entrance. The second floor is slightly unusual in that it sits within a mansard construction with a more traditional pitched roof springing off the top of this to create a loft space internally.
- 2.3 Overall stability of the building is provided by shear action in the cellular plan arrangement together with the floors which act as diaphragms.
- 2.4 The geology map for the area indicates the underlying stratum is London Clay and this corresponds with our experience in the locality. A full site investigation will be carried out in due course to confirm this and also to investigate any potential ground water issues and establish existing foundation profiles.
- 2.5 The site is located in Flood Zone 1 ("Low Risk") and it is therefore considered that the risk of flooding is negligible
- 2.6 The building appears to be in average structural condition for its age and type.

## **3.0 Proposed Alterations**

- 4.1 The current proposals are to create a new basement level under the full footprint of the property.
- 4.2 The proposed basement construction is likely to comprise reinforced concrete underpinning and a reinforced concrete basement level floor slab which will act as a prop to the base of the new walls. The reinforced underpinning will be designed as a vertical cantilever to avoid reliance being placed on the ground floor construction acting as a prop. This will be of benefit in both the temporary and final situations.
- 4.3 At ground floor level it is anticipated that the existing timber floor (which is likely to be supported on masonry dwarf walls under) will be replaced with a new the steel and timber

floor structure which will span the full width across the property with the steel beams taking support off the new underpinning. While not relied upon in the design, these steels will provide significant propping action to the head of the new basement retaining walls.

- 4.4 New lightwells are to be created to the front and rear of the property and these will be formed in reinforced concrete. The lightwell at the front will be designed to accommodate Highway loading.
- 4.5 The waterproofing is to be dealt with by the Architect in conjunction with specialist manufacturers / suppliers, but we understand that the strategy is that the reinforced concrete underpinning and retaining walls will act as a primary barrier to water ingress while an internal drained cavity system will be installed to complete the system creating a Category 3 Basement as defined in BS8102.
- 4.6 Overall lateral stability of the building as a whole will not be significantly affected by the proposals as all lateral loads from the existing building will be transferred directly into the ground via the new concrete retaining walls.
- 4.7 While the proposed works are relatively involved from a structural point of view, they can be considered relatively commonplace in the current market. It is obviously important to appoint a contractor experienced in this type of work, but if this is done and the works properly carried out, there should not be any significant concern regarding the stability of adjoining buildings.

#### 5.0 Sequencing and temporary works

- 5.1 As part of the design process an assumed sequence of construction will be developed by Elliott Wood Partnership, together with an indication of the temporary works that are likely to be required. The Contractor will be required to develop this information and prepare appropriate drawings, method statements and other relevant information relating to the implementation of the works before progressing.

#### 6.0 Conclusion

- 6.1 54 Howitt Road is a 3 storey Victorian building. The building is traditionally constructed with masonry walls and timber floors. The building is in average structural condition for its age and type.
- 6.2 The current proposals are to construct a new single-storey basement under the existing building. The proposed works will necessitate reinforced concrete underpinning to the front, rear and Party Walls of the existing building. The new reinforced concrete retaining walls will be designed as vertical cantilevers to assist in terms of sequencing and general robustness, but the new steel and timber ground floor structure will also provide propping action to the top of these walls.
- 6.3 This work is not extensive and if properly undertaken should pose no significant threat to the stability of the adjoining structures. Having said this, the construction of basements

alongside existing buildings is specialist work and Elliott Wood Partnership will be involved in the selection of an appropriate Contractor who will need the relevant expertise and experience in this type of project. Thereafter Elliott Wood Partnership will have an ongoing role during the works on site to monitor that the works are being carried out generally in accordance with their design and specification.