I A N H A R B A N CONSULTING ENGINEERS

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November 2015

STRUCTURAL FEASIBILTY REPORT

For

BASEMENT CONSTRUCTION

At

43 BURGHLEY ROAD NW5

For

Mr E NATHANSON



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CONTENTS

- Summary 1.
- 2. **Instructions and Limitations**
- **Description, History and Proposals** 3.
- 4. Site
- **Structural Proposal and Construction Methods** 5.
- Effects of Proposed Works 6.
- Appendix A Drawing L01-L02 7.



1.0 Summary

This report considers the structural feasibility of constructing a proposed basement under an existing house at 43 Burghley Road NW5, with particular reference to the basement and lower ground floor construction and the effects on nearby buildings. A concept structural layout and construction sequence has been developed as part of the considerations. This utilises traditional and underpinning techniques as are now frequently adopted for schemes of this type.

The proposals are considered entirely feasible using normal underpinning techniques with only minor risk of non structural damage to nearby structures, which would be within category 1 of BRE Digest 365

The effects of the basement on the water table and on surface water flows have been considered by others and are covered in other supporting documents.



2.0 Instructions and Limitations

- 2.1 Instructions were received from you via your Architect requesting a Structural Methodology Statement on the proposal to construct a basement under and into the garden of 43 Burghley Road London NW5 We understand the report is required to supplement a Planning Application.
- 2.2 Our investigation and report is based on currently available ground data and is to supplement a Basement Impact assessment prepared by Ground and Water. This report has been prepared in consideration of the basement only and should not in any way be taken as a report on the condition of the structure of the existing building.
- 2.3 This report is prepared for the information, benefit and use of Mr E Nathanson only and any liability of Ian Harban Consulting Engineers to any third party, whether in contract or in tort, is specifically excluded. Any third party finding themselves in possession of this report may not rely upon it without first obtaining the written authority of Ian Harban Consulting Engineers.
- 2.4 RHS refers to the right hand side of the building when viewed from the road.
- 2.5 LHS refers to the left hand side of the building when viewed from the road.



3.0 **Description, History and Proposals**

- The site is rectangular on plan with the existing building situated close to the Road. There is 3.1 back garden approximately 11m beyond the rear wing of the building. The existing house has three stories plus attic.
- 3.2 The ground floor level is raised above pavement level 1.5m.
- 3.3 It is proposed to construct a new basement under the footprint of the building extending slightly to the rear of the site to form a lightwell. Architectural drawings are included in the Planning Application and are not reproduced in this report for brevity.



4.0 Site

- 4.1 **Existing Structures**
 - The existing building is predominantly a load bearing masonry construction, it is of an era 4.1.1 where the ground floor would most likely be ground bearing lower floors and with corbelled brick footings.
 - 4.1.2 Although minor internal modifications are proposed to the upper levels of the building this will not affect the overall loadpaths to the ground.
 - 4.1.3 The building is mid terrace so the two side walls are Party Walls.
 - 4.1.4 Window sampling by Ground and Water reveal there to be filled ground to the front of the property to a depth of 2.5m from front yard level. This level is approximately 1m below ground existing ground floor level.
 - A Trial pit excavated by ground and water revealed the foundation to be underpinned with 4.1.5 brick to a depth of .15m below ground level and concrete down to between 2.35 and 2.45m below ground level.
- 4.2 Access
 - 4.2.1 The current site access from the road and this will be maintained during construction.
- 4.3 Geotechnical
 - Basement Impact Assessment, provides local borehole data. This suggests the site will 4.3.1 comprise London Clay down to the excavation levels proposed by this development. Water table levels are below proposed excavation depths.
- 4.4 Groundwater
 - 4.4.1 Ground water and flooding effects are fully considered in the Ground and Water Basement Impact Assessment and not reproduced in this report for brevity.



5.0 Structural Proposal and Construction Methods

- 5.1 Structural Proposals
 - 5.1.1 The drawings in Appendix A show the proposed concept structural layout and construction proposals with respect to the basement construction. The upper floors have not been considered in this report, not being affected by the underground construction.
 - 5.1.2 It is proposed to install a reinforced concrete underpinning wall to the two adjoining property party walls and to form a similar reinforced concrete wall at the front and rear. Lateral stability will be formed with a new concrete ground floor providing propping action to the top of the wall.
 - 5.1.3 The floor plate of the basement will be reinforced concrete along with the ground floor
- 5.2 Proposed Basement Construction Method
 - 5.2.1 The proposed sequence and method of construction needs to take account of temporary stability during construction, both of the site itself but also the neighbouring buildings.
 - 5.2.2 The works would need to be undertaken by a contractor familiar with underpinning methods and basement construction.
 - 5.2.3 More particularly the proposed structural sequence would be as follows, assuming other site set up/ welfare etc has been completed:
 - 5.2.3.1 Isolate and make safe services to existing building.
 - 5.2.3.2 Demolish existing building as necessary; grub out foundations and ground floor, filling any resulting voids with material arising but which will not impose obstructions for the piling rig.
 - 5.2.3.3 Excavate 1m wide trenches to bays marked 1 shown on the drawings, using trench sheets and strutting for temporary support.
 - 5.2.3.4 Cast 1.0m width of foundation with starter bars for walls and adjacent bases.
 - 5.2.3.5 Carefully break out as necessary existing concrete underpinning.
 - 5.2.3.6 Form new walls connecting reinforcement to base reinforcement starter bars.
 - 5.2.3.7 Repeat procedure with pits marked 2 on the drawings.
 - 5.2.3.8 Repeat procedure for pits marked 3 on the drawings
 - 5.2.3.9 Repeat the procedure for pits marked 4 on the drawings.



- 5.3 Construction Good Practice.
 - 5.3.1 Local parking is limited and therefore site operatives should use the many immediate public transport connections.
 - 5.3.2 Demolition and excavation dust on site will be controlled by the watering of work at ground floor level. Inlets to the drainage system will be protected with filters bunded with sandbags to prevent slurry runoff entering the system.
 - 5.3.3 The Contractor will adhere to, and respect any restrictions on working hours or the enforcement of silent periods throughout the day, which may be imposed by the Local Authority, Contract Documents or the Party Wall requirements.
 - 5.3.3 All waste Substances from the site shall be disposed of offsite, under the appropriate Duty of Care and subject to approvals/consents from the relevant statutory bodies. Recycling is to be undertaken wherever appropriate. All vehicles leaving site carrying potentially dust-generating demolition or construction waste are to be completely sheeted with tarpaulin or netting, in good condition.
 - 5.3.4 The site is to be securely horded along the boundary to the public highway. The hording is to be designed by the contractor's Charted Civil or Structural engineer to resist appropriate wind loadings as defined by 8S6399: 2.
 - 5.3.5 Welfare facilities will not be placed on the public highway.
 - 5.3.6 All live emergency exits and access routes on site will be maintained at all times.



6.0 Effects of Proposed Works

- 6.1 Neighbouring Structures
 - 6.1.1 The trial hole information reveals that foundation depths are close to the depths required to form the basement. This being the case, there should not be any increase in the risk of differential foundation movement as result of foundation depth alteration form the scheme.
 - 6.1.2 However, with all construction of this type, some adjoining structures may suffer minor movement. Any settlement resulting from a properly executed underpinning scheme will be within reasonable limits and at worst may result in superficial cracking to applied finishes. Condition surveys should be undertaken as part of Party Wall Act requirements so that the effects of any minor movement that might occur can be monitored. We would also recommend datum level monitoring stations and targets are installed to monitor levels during the works.
 - 6.1.3 The form of construction will also limit and lateral movement of the top of the wall, this being propped by the proposed reinforced concrete ground floor.
 - 6.1.4 The proposed works will not affect the structural stability or integrity of the neighbouring structures.
 - 6.2 Adjacent Trees and Root Protection
 - 6.2.1 The proposals have been developed in way which minimises working to external areas where tree and root protection measures are required. The spoil arising from the excavations can be disposed of to areas outside the protection areas using conveyors and machines will work inside the basement footprint.



APPENDIX A

Drawings L01-L02





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