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Structural Appraisal Report for

31 Steeles Road, NW3 4RE

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Status: Planning
Version 2

1.0 BRIEF

1.1 We were asked by Giancarlo Alhadeff of Heat Architecture to visit the above property and visually investigate existing cracking, movement and prepare drawings for proposed alterations and repair.

1.2 Whilst our investigation work has been taken far enough to satisfy the requirements of the brief, it has, of necessity, not been exhaustive. The findings cannot therefore be warranted to apply to areas of the building not inspected or investigated

1.3 This report is intended for the use of the client, David Alhadeff, in support of a planning submission and no liability can be accepted for use by any third party.

2.0 PROPERTY TYPE, CONSTRUCTION & CONTEXT

2.1 31 Steele's Road is a four storey domestic dwelling, designed by the Architect J.M Brydon and built in 1874 as his own family home. It was extended and altered quite soon after construction.

2.2 The property is a Grade II Listed building, of note is that its neighbour, 32 Steele's Road was also designed and built by Brydon, and was listed prior to No. 31.

2.3 The property is generally formed of load bearing masonry walls and timber floors, although in a fairly unusual arrangement with alternative spanned floors and indirect load paths which has likely contributed to some sloping floors. On visiting the adjacent neighbour, No 32 Steele's Road, we were informed that their property 'suffered' a similar arrangement, albeit with even more disjointed walls, and it was necessary to insert an additional steel frame to provide coherent and proper support and resist further movement.

2.4 Archive drawings from 'the Building News' were obtained, and generally seem to match the present arrangement, with some alterations and additions, although the arrangement of the loft floor is not confirmed.

3.0 VISIBLE DEFECTS

3.1 There are fine cracks to brickwork arches and to brickwork above windows to the lower ground floor.

3.1.1 None of these cracks are structurally significant. It will be proposed to fill finer cracks with proprietary crack filler and to incorporate helibars over windows to spread stresses which typically form in these areas.

3.2 There is a crack / joint which has formed between the front steps, utility room and the main house. There are signs that this has been previously filled in.

3.2.1 This will likely be due to the differential stresses placed on the foundations between the heavily loaded main house and more lightly loaded steps, and the steps being more affected by seasonal movement and growth of nearby trees.

3.2.2 The movement is not structurally significant and does not seem to adversely affect the property aesthetically nor for a user, therefore is it suggested the gap is filled with mastic to form a joint and allow for some movement with weather protection, and the area monitored.

3.3 There is an obvious slope in the first floor front rooms floor, which is easily seen in the timber joinery about an internal wall and doorframes. There is also a crack in the plasterwork ceiling below.

3.3.1 The floor was examined and found to span front-to-back, with no intermediate support / steel. Therefore the joists span some 6.2m, supported on a masonry internal wall, and the ones examined near to this support were no continuous over it. It is likely that there was some initial settlement and shrinkage to the timbers, and this was exacerbated over time with the advent of central heating and excessive loading.

3.3.2 It is proposed to reduce the span of the joists by inserting a steel beam at approximately mid-point, itself supported on an external wall and a new steel post to be incorporated into a present stud work wall, tied back to the chimney.

3.3.3 A nearby stud wall, presently resting on the joists and likely over-loading them, will be removed and replaced, allowing the joists and floor to be re-levelled without additional joists / firings. The new stud wall, allowing for a larger bathroom, will then pick up loft loads as necessary, with these being more directly transferred to the ground. In turn, this has the advantage of reducing long spans to the loft floor.

4.0 OTHER OBSERVATIONS, PROPOSALS AND STRUCTURAL IMPLICATIONS.

4.1 It is proposed to make a few openings in load-bearing lower-ground floor walls:

4.2 Single door way openings may be formed with typical precast concrete lintels and it is expected that there is sufficient spread to the foundations below.

4.3 A larger opening is proposed to an internal wall that supports the floor above and a partition only. A new frame will spread the loads back to the existing / new foundations, and as this is also ideally the path for our new column and first floor beam, it also serves to clearly take this load to the ground. The steel, being a down-stand, will be relatively straightforward to fit and will result in no lost of timber joists from the ground floor.

4.4 There are patress plates to the rear first floor on the western flank wall.

4.4.1 There is no obvious further movement to this wall and so no remedial works are proposed.

4.5 The eastern side chimney is out of plumb.

4.5.1 From ground observation, the chimney does not seem to be excessively deflecting, however this is to be more closely examined once safe access is feasible, plus the arrangements of masonry below the chimney are established in case any previous works have had negative implications. If so, then appropriate support and/or repair will be recommended.

4.6 Existing garden steps and retaining wall between the property and garden are proposed to be removed and new steps and retaining structures formed to provide more useful space and light about the lower ground floor and a small extension to the rear of the side addition next to no 32.

4.6.1 The retaining wall will be some 1m in height and therefore easy and typically formed in masonry and concrete. Owing to the location and height of this wall it has little if any impact on the neighbours and existing property.

4.7 *The garden wall between no 31 and 32 may require modest underpinning to allow for the new steps and extension. No. 32 is some 1.5m away from the garden wall, and is at the lower level already; therefore no building walls will be undermined. A timber framed lean-too shed is adjacent to the garden wall, formed on a concrete slab. There is no reason that if underpinning is carried out diligently and as per the specification that the garden wall or shed should be impacted by the works. The top course of the garden wall is poorly bonded and this will be made good in lime mortar to match existing prior to the proposed works being carried out.*

5.0 CONCLUSIONS

5.1 The property has suffered movement that one would expect of a property of its age and on clay subsoil, however some movement does seem to relate directly to a rather poor original structural arrangement.

5.2 The proposed works are relatively modest alterations to a London home, and if carried out well, will enhance the robustness of the building and add to our understanding of this form of construction whilst retaining most of the historic fabric.

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