

Phoebe Hodgkins  
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The Tanneries  
55 Bermondsey Street  
London SE1 3XN

Dear Phoebe,

13<sup>th</sup> September 2016

#### 4 Oval Road, London NW1 7EB

Following our site meeting last Wednesday 7<sup>th</sup> September I summarise matters discussed and recommendations as follows:

#### Observations:

- **Removal of central basement walls – refer to attached marked-up sketch sk.01**

A steel beam was revealed to the underside of the ground floor construction spanning across the property and bearing on the walls to be removed, this was measured as 178 x 102 and appeared to be a RSJ section. Another 178 x 102 steel beam (Beam G2) was exposed towards the rear supporting the main staircase wall and bearing on the wall to be removed. A pair of concrete beams (Beam G3) were also revealed spanning from the party wall with no. 2 to the wall to be removed.

- **Existing steel beam at ground floor**

A steel beam (Beam F1) was revealed spanning between party walls above openings at ground floor, this was measured as 225 x 102 and appeared to be a RSJ section.

- **Bowing/deflected floors and sloping staircase**

Bowing floors throughout the property were evident except at 3<sup>rd</sup> floor level where the floors appeared to be relatively level. It was apparent that the staircase was sloping down away from the party wall with no.2 from right to left (looking towards the rear of the property). Floor boards were removed in localised areas at each floor level, this revealed timber floor joists spanning from front to rear and supported on the spine wall/line at the centre of the property. The joists varied in size: ground floor – 210 x 50 approx. 380mm centre, 1<sup>st</sup> floor – 220 x 50 approx. 370mm centres, 2<sup>nd</sup> floor – 200 x 50 approx. 370mm centres. 3<sup>rd</sup> floor joists span between party walls, measured as 200 x 75 approx. 400mm centres.

#### Recommendations:

Our calculations have determined that the allowable bending stress and deflection values of the existing ground floor Beam F1 (225 x 102) exceed acceptable levels. This is probably the cause of the deflected upper floors and sloping stairs, as all load from the 2<sup>nd</sup> and 1<sup>st</sup> floors is supported by this beam.

We recommend that intermediate supports to the existing ground floor beam are introduced to allow the beam to safely support the applied loads. This would involve new 100 x 100 steel posts

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supported by the new previously specified beam at basement level (refer to sk.02). Our structural drawings will be amended (as required) to detail this proposal in due course.

The existing 178 x 102 Beam G2 (at the rear of the property) requires extending following the removal of the basement wall. This can be achieved by bolting 2 no. new PFC's (parallel flange channels) to the web of the existing beam with a bolted end plate connection to the new basement beam (refer to sk.02). Our structural drawings will be amended (as required) to detail this proposal in due course.

Our calculations have indicated that the existing ground floor joists are capable of spanning the additional 1.0m (approx.) following removal of the basement walls and 2 no concrete beams.

Typically, calculations indicate that the existing floor joists are within acceptable stress and deflection limits. However, 3<sup>rd</sup> floor terrace joists require strengthening to safely support the proposed layout. This can be achieved by adding additional timber joists between the existing joists. Our structural drawings will be amended (as required) to detail this proposal in due course.

**Other matters discussed:**

• **Notching/holes to timber joists**

Notching/holes to existing joists was evident throughout the property. We recommend that no additional notching/holes is undertaken, and new services should be taken through existing notches and holes where possible. However, if there is a particular requirement in a localised area our further advice should be obtained.

• **Timber noggings**

A relatively straightforward and economic remedial detail that can be adopted to link the existing floor joists and prevent them from rotating is the introduction of timber noggings/solid block strutting. We recommend that 2 no. lines of noggings, equally spaced, are provided to each span of floor joists at each floor level.

Please be advised that undertaking the proposed remedial and strengthening works noted above would not level the sloping/deflected floors and stairs. If floor levelling is required, timber firings would be required which would affect door threshold, skirting and stair/landing details. It is not possible to level the stairs without extensive reconstruction of the staircase.

The structural recommendations would allow the proposed alterations to be undertaken and maintain structural integrity.

We will not progress with amending the structural details outlined above until instructed to do so.

Please call me if you wish to discuss this further.

Yours sincerely,

S.T. Hopkins  
**CWPM Consulting**