Summary Of Structural Assessment And Strengthening Works Required

The capacity of the existing structural elements have been checked against the required loadings to the Eurocodes. Below is a summary of the assessment identifying any elements which require strengthening as part of the refurbishment works:

Existing Timber Spine Beam Assessment:

The spine wall has been removed at ground floor level so the existing timber floor beams at each level have been assessed.

Bending Stresses @ 230% capacity => strengthening required
Deflection @ 200% limit => strengthening required

Refer to S-0001.1-Detail 1

Existing Timber Floor Joist Assessment:

The existing floor joists vary in both depth and width, typically they are 160x60 at 380 c/c. They have been assessed for their maximum span.

Bending Stresses @ 98% capacity
Deflection @ 160% limit => strengthening required

Refer to S-0001.1-Detail 1

Existing Stair Beam Assessment:

The stair wall is not supported below first floor level so the existing timber floor beams at each level have been assessed.

Bending Stresses @ 140% capacity => strengthening required
Deflection @ 200% limit => strengthening required

Refer to S-0001.5-Detail 6

Existing Floor Beam Assessment:

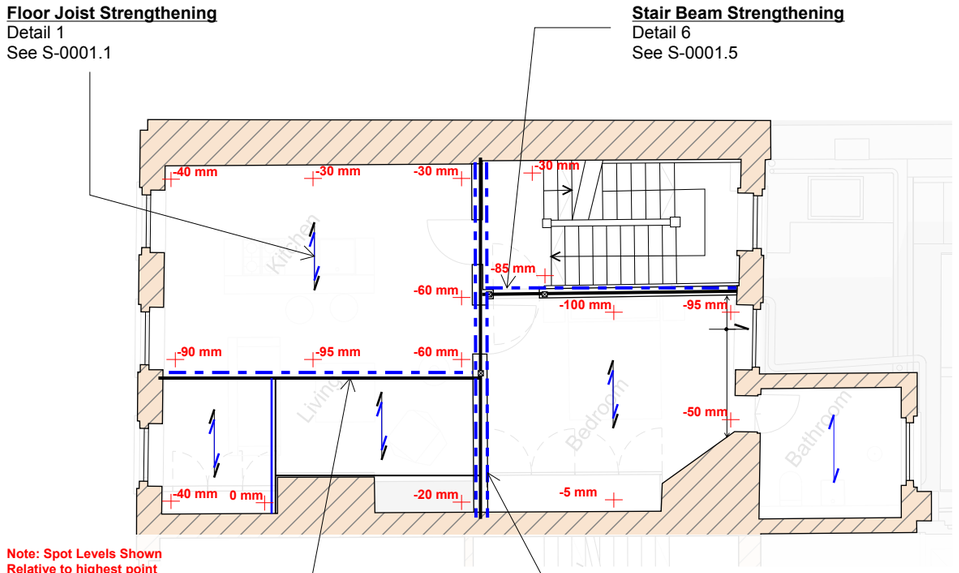
The existing timber floor beam at each level have been assessed.

Bending Stresses @ 110% capacity => strengthening required
Deflection @ 200% limit => strengthening required

Refer to S-0001.4-Detail 4

Existing Floor Movements:

From survey spot levels the existing floor structure has settled/deflected by up to 100mm at each floor level. Strengthening Works are required to ensure to further settlement occurs



Floor Joist Strengthening
Detail 1
See S-0001.1

Stair Beam Strengthening
Detail 6
See S-0001.5

Note: Spot Levels Shown Relative to highest point on floor (2nd Floor Shown)

Floor Beam Strengthening
Detail 4
See S-0001.4

Spine Beam Strengthening
Detail 1
See S-0001.1

TYPICAL FLOOR PLAN 1ST TO 3RD

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date: 20/11/2017
project no: 879
sketch no: 03-XX-LB-S-0001.0
rev: 01
by: RK

-This option provides the required strengthening to the existing spine beam while minimising impact on the historic finishes.
-This option does require the existing floor beams to be trimmed and re-supported on the new steelwork
- Option A is considered to have the least impact on the historic building fabric while achieving the required structural strengthening

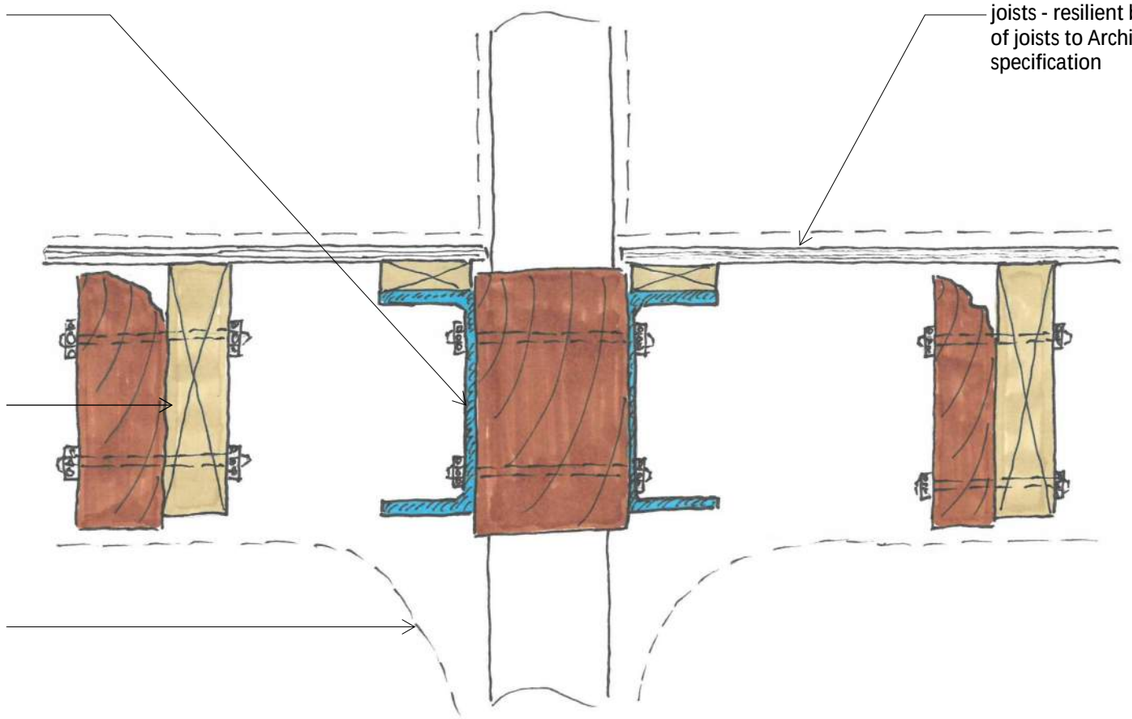

Figure 1, Spine Wall Strengthening Location (Indicative)

Detail 1: Spine Beam & Joist Strengthening Requirements, 1:10

Structural Strengthening Requirements:

- The existing spine wall beam can not be justified to support the required residential loadings to current standards therefore strengthening is required.
- The existing floor joists require strengthening due to comply with current standards and allow for levelling of existing floors

- Generally all structural strengthening proposed will reduce deflections and movements within the building to protect the historic structure and materials form further damage

- Steel beams to bear onto padstones in masonry party walls

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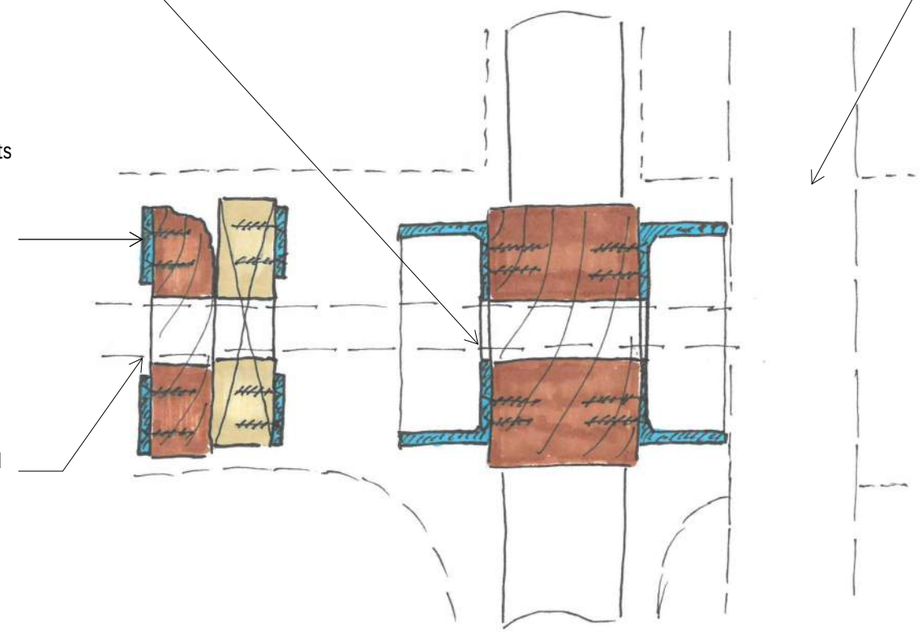

Figure 2, Spine Wall Strengthening Location (Indicative)

Detail 2: Spine Beam & Joist Service Penetration, 1:10

Structural Strengthening Requirements:

- The strengthening is required to allow the waste pipe from the proposed kitchen island unit to run through the floor zone. The island unit is required to avoid any damage to historic wall finishes
- The service run for the kitchen waste pipe will effect a maximum of 3 joists and the spine beam at each level

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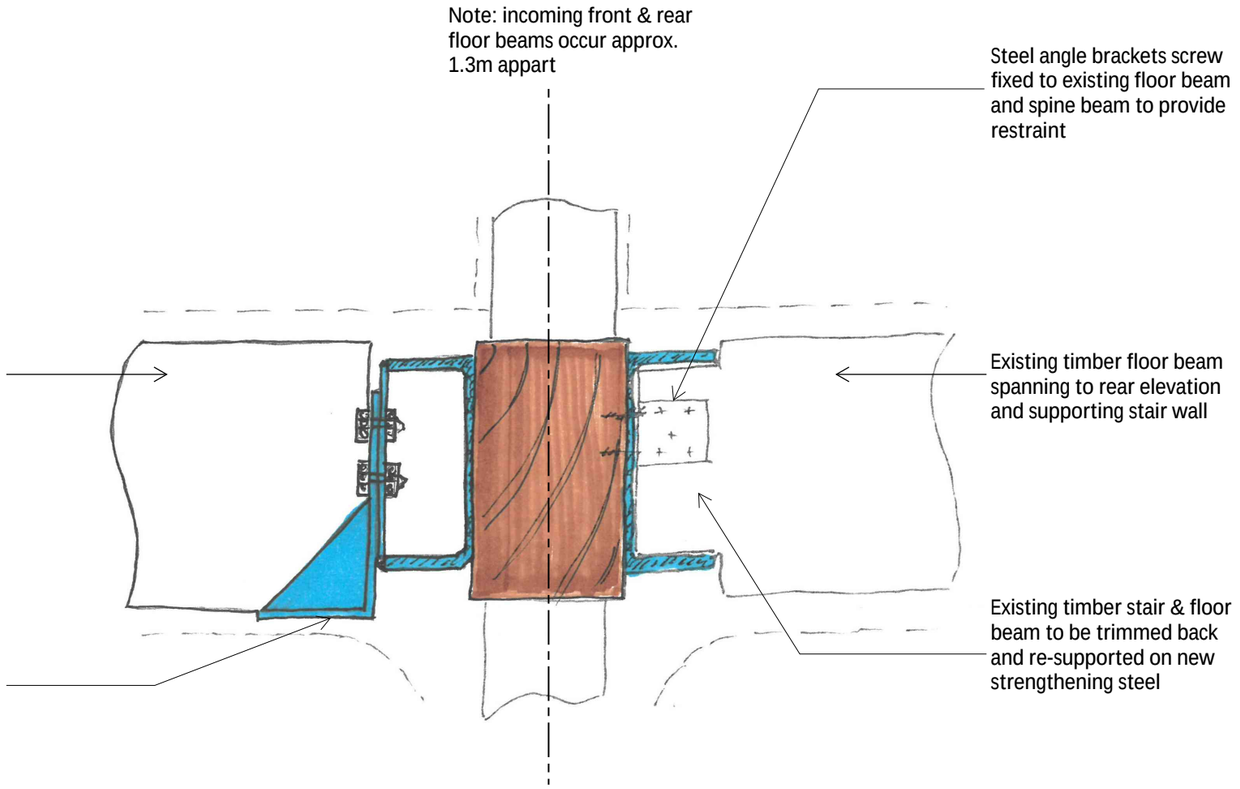

Detail 3: Floor Beam To Be Re-supported, 1:10

Structural Strengthening Requirements:

- The strengthening is required to the bearing of the floor beams to justify the connection for required residential loadings to current standards

Figure 3, Floor Beam To Be Re-supported (Indicative)

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