



22nd June 2026

Dear Kathryn

Re; Application number 3/2025/0738

I hope you are well.

Please find below the response to the email you sent on the 4th June 2026.

I have attached:

- A revised Heritage Statement
- The structural engineers report
- Several photographs to demonstrate how the beams were bowed on the 1st floor.
- The floor survey for the 1st floor

History of work undertaken to date;

The poor quality/damaged floorboards were removed on the 2nd floor to make a good solid base for the dental chair, the floor needed to be raised slightly to accommodate the pipe work for the dental chair without disturbing the original ceiling. The boards have been safely stored on site and will be used to address any required repairs to, and replacement of, oak boards for the wood floor on the 1st floor and any other areas that need repair on that floor and staircase.

A stud lead lined wall will need to put between surgery 4 and 5 on the 2nd floor and plastered with lime plaster.

The plaster on the 2nd floor was removed over a year ago as it was crumbling and uneven following a leak from the chimney- this will be replaced with lime plaster. Any areas that are identified as being repaired with traditional cement will be replaced with lime plaster.

Wood stud walling has been installed to create two rooms on the 2nd floor. These will be plastered with lime plaster. Wood stud work around the 2nd floor windows will be removed to ensure that the full extent of the historic Georgian windows will be exposed.

RSJ's were installed below the original narrow wooden beams on the 1st floor to support the full weight of dental chair (and any patient). Please see the structural engineer's report which justifies their need. They have been covered with fire retardant plaster board before and the intention is to plaster over these with lime plaster. A partial suspended ceiling will be put up to disguise the RSJ's and improve the aesthetics. This ceiling will stop short of the windows so that the Georgian windows and historic shutters will be visible.

The flooring on the 1st floor is original wood, it will be left in situ, any repair needed will be done using removed floor boards from the 2nd floor.

Reclaimed stone will be used in the alterations to the ground floor.

Kind regards

Julie

HERITAGE STATEMENT

Planning Submission



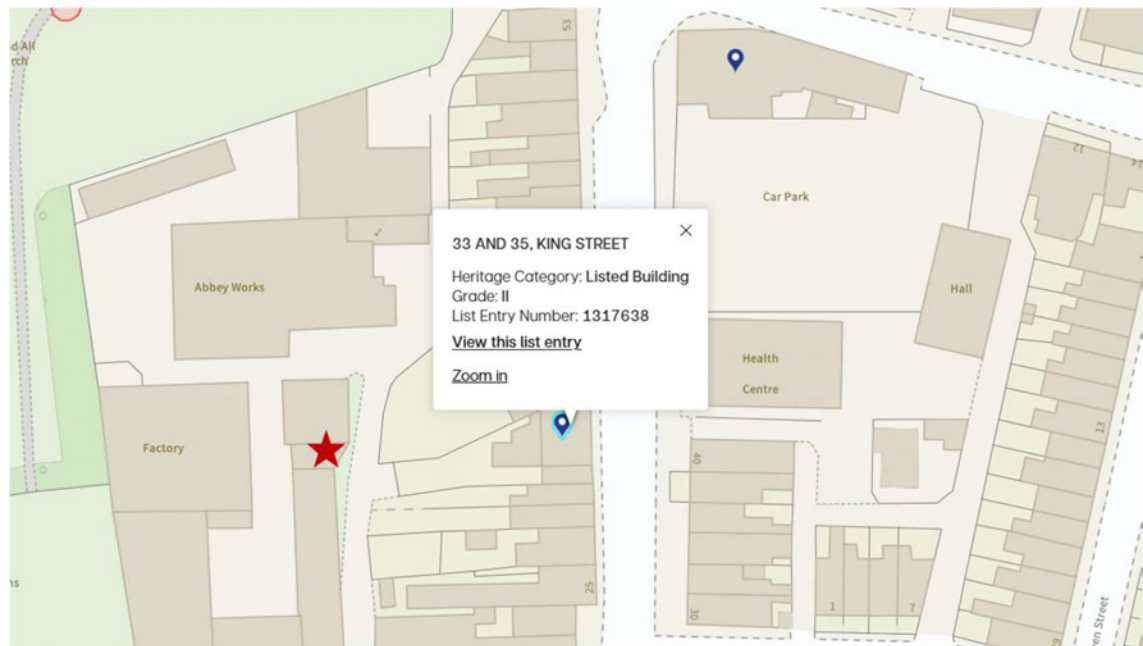
33 & 33a King Street, Whalley, BB7 9SP
Grade II Listed Building within Whalley Conservation Area

JUNE 12, 2026

1. Site Context and Heritage Designation

The subject properties, 33 and 33a King Street, are located within the designated Whalley Conservation Area and are individually identified as Grade II Listed Buildings on the National Heritage List for England. The buildings are situated within the historic core of Whalley and contribute positively to the character and appearance of the area.

In line with paragraph 207 of the National Planning Policy Framework (NPPF) (December 2024), this statement describes the significance of the heritage asset, the contribution of its setting, and the impact of the proposed works.



Listing and map from Historic England Map Search 2025

2. Significance of the Heritage Asset

Whalley is a town of historic and architectural interest, well known for its medieval Abbey and Church, and the well-preserved streetscapes that form the Whalley Conservation Area. King Street is the main commercial street, and retains a number of 18th and 19th century buildings that give the town its distinctive character.

Number 33 King Street is a Georgian building constructed around 1820, featuring characteristic design elements of the period including red brick with sandstone detailing, timber sash windows, and a natural slate roof. It was divided into two units in 1985, 33 and 33a King Street.

Surviving interior features of significance include:

- The original oak staircase with turned balusters and wreathed handrail in 33 King Street
- Ground floor plaster ceiling and fireplace in 33a King Street
- Some original internal doors and oak detailing around the Georgian windows in 33a King Street

In 1991, the unit at 33a obtained change of use from residential use to a dental practice with various consents granted for internal modifications. A mixed hereditament operated for several years. It became fully commercial before 2000. The historic connection between the two buildings was partially restored in 2009 when the attic level was reconnected and, in 2024, planning permission was granted for a further reconnection for the reinstatement of an original second-floor opening between 33 and 33a King Street.

3. Planning Policy Context

Statutory Duty:

- Planning (Listed Buildings and Conservation Areas) Act 1990, Section 16(2): In considering whether to grant listed building consent, the local planning authority shall have special regard to the desirability of preserving the building, its setting, and any features of special architectural or historic interest which it possesses.
- Planning (Listed Buildings and Conservation Areas) Act 1990, Section 72(1): In the exercise of planning functions with respect to any buildings or other land in a conservation area, special attention shall be paid to the desirability of preserving or enhancing the character or appearance of that area.

National Policy — NPPF (December 2024):

- Paragraph 207 requires applicants to describe the significance of any heritage assets affected, including any contribution made by their setting, proportionate to the asset's importance.
- Paragraph 210 requires decision-makers to take account of the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation, and the positive contribution that conservation can make to sustainable communities and economic vitality.
- Paragraph 212 states that great weight should be given to the conservation of a designated heritage asset when considering the impact of a proposed development on its significance, irrespective of whether any potential harm amounts to substantial or less than substantial harm.
- Paragraph 213 requires that any harm to the significance of a designated heritage asset should require clear and convincing justification. For Grade II listed buildings, substantial harm should be exceptional.
- Paragraph 215 states that where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including securing its optimum viable use.
- Paragraph 219 states that proposals which preserve or better reveal the significance of a heritage asset's setting should be treated favourably.

Local Policy:

- Ribble Valley Core Strategy (adopted December 2014):
 - Key Statement EN5 (Heritage Assets): Seeks to conserve and enhance the significance of heritage assets, giving great weight to their conservation when determining planning applications. Supports the sustainable use of heritage assets where this is consistent with their conservation.
 - Policy DME4 (Protecting Heritage Assets): Requires proposals to demonstrate how they will conserve the significance, character, and setting of the heritage asset, especially where the proposal affects listed buildings or conservation areas. Proposals should be reversible where possible and use traditional and locally appropriate materials and methods of construction.

- Whalley Conservation Area Appraisal and Management Guidance (Ribble Valley Borough Council, 2005/2006): Identifies King Street as a principal character area within the Conservation Area, noting the importance of the 18th and 19th century commercial buildings and their contribution to the street's historic character. The guidance emphasises the importance of maintaining original fabric, traditional materials, and proportions of historic window openings. This proposal is consistent with that guidance.

The proposal aligns with the statutory duty, national policy, and local planning policy by demonstrating a sensitive, reversible, and material-appropriate intervention that conserves and sustains the building's viable use while preserving all key heritage features and contributing positively to the Whalley Conservation Area.

4. Description of Proposed Works

The proposal seeks to implement previously approved works (granted October 2024) to reinstate a historic second-floor doorway linking 33 and 33a. This reinstatement enables expansion of the dental practice, providing a new surgery and waiting area.

Key elements of the proposal include:

- Installation of structural steel beams (RSJs) beneath the first-floor ceiling to support the concentrated load of dental equipment, including chair and cabinetry, as required by the structural engineer's report. The RSJs are recessed below the existing ceiling level and will be encased in fire-retardant plasterboard before being finished with lime plaster, protecting both the public and the historic fabric above.
- Installation of a partial suspended ceiling at first-floor level to conceal the RSJs. The suspended ceiling is designed to stop short of the Georgian windows so that the full height and character of the window openings remain visible and unobscured.
- Construction of a timber stud partition between surgery rooms 4 and 5 at second-floor level, incorporating lead lining for X-ray shielding as required under current dental regulations. The partition will be finished with lime plaster throughout.
- Removal and replacement of failed second-floor plasterwork. The existing plaster had deteriorated as a result of a historic chimney leak and had in places been repaired using cement, which is incompatible with the building's masonry. All replastering will use lime plaster to restore breathability and protect the original fabric. Any areas of cement repair will be carefully cut out and reinstated in lime.
- Replacement of damaged and uneven second-floor boards to form a level, structurally sound base, with the floor raised slightly to accommodate service runs beneath the dental chair. The removed boards are being retained on site and will be used to repair the original timber floor at first-floor level and elsewhere as required, ensuring that no original material leaves the building.
- The existing first-floor timber boards are original and will remain in situ. Any repairs needed will be carried out using the salvaged boards from the second floor, maintaining the material integrity of both floors.
- Use of reclaimed stone for any alterations and making good at ground-floor level, ensuring new work is consistent in character and material with the existing historic fabric.
- The new timber stud partitions at second-floor level will be plastered with lime plaster and set back from the window reveals so that the full Georgian window openings are visible from within the rooms.

All proposed interventions are designed to be fully reversible, use appropriate materials, and preserve the legibility of the building's original layout and features, in accordance with good conservation principles.

5. Conservation and Structural Justification

The proposed works represent a considered balance between essential structural requirements and high-quality heritage conservation. Decades of deferred maintenance and the effects of a historic chimney leak have left areas of the internal fabric vulnerable. These works directly address that deterioration rather than compounding it.

The structural steelwork at first-floor level is strictly necessary to accommodate the concentrated load of a dental chair and patient. Its installation has been engineered to avoid any interference with the external envelope or the visible historic interior. Encasing the steelwork in fire-retardant board before applying lime plaster provides the required fire safety protection without any loss of historic character.

The approach to the floorboards exemplifies the circular material philosophy applied throughout the project. Damaged boards at second-floor level, which no longer provided a sound or level surface, have been removed and kept safe on site. They will be used to repair the original timber floor at first-floor level and elsewhere as needed, ensuring original material is retained within the building rather than discarded. The first-floor boards, which are original and undamaged, are being left in place.

Replacing failed and incompatible cement repairs with lime plaster throughout will restore the building's breathability and actively reduce the risk of moisture damage to the underlying masonry, a direct conservation improvement over the current condition of the building.

Converting the second floor into a modern dental surgery, while making the lower floors available for letting, creates a sustainable economic model for the building. An occupied, financially self-supporting listed building is one that will be properly maintained. The long-term benefit to the heritage asset of keeping it in active use is significant and should be weighed accordingly.

6. Assessment of Impact on Significance

The proposed internal works are minimal and sympathetic to the historic character of the property. No external alterations to the original historic building are proposed. The structural intervention has been designed to avoid disturbing visible or historically significant fabric, and the restoration of the original doorway contributes positively to the building's historic integrity.

The use of traditional materials (lime plaster, salvaged timber, reclaimed stone) and reversible construction methods ensures that the proposals conserve and enhance the heritage asset, in accordance with the Planning (Listed Buildings and Conservation Areas) Act 1990 and NPPF paragraphs 212 and 215, and Ribble Valley Core Strategy policies EN5 and DME4.

There is no harm to the significance of the listed building or the character and appearance of the conservation area. Should any uncovering of concealed historic features occur during works, these will be recorded and, where appropriate, retained.

7. Public Benefits

In line with paragraph 215 of the NPPF (December 2024), any less than substantial harm caused by necessary structural interventions is outweighed by the clear public benefits of:

- Reinstating a historic link between two parts of a listed building
- Supporting the continued viable use of a heritage asset
- Enhancing local healthcare provision in a sustainable and accessible village centre location
- Retaining and conserving the property in active use, which contributes positively to the appearance of King Street and the wider conservation area

8. Conclusion

The proposed works have been developed to ensure minimal intervention and maximum preservation of historic fabric. The reinstatement of the original second-floor doorway restores a historic connection between the two parts of the listed building and contributes positively to its significance. The material approach, lime plaster throughout, salvaged original timber reused on site, reclaimed stone at ground-floor level, reflects a genuine commitment to conservation rather than mere compliance.

The proposal aligns fully with both national and local planning policy. By sustaining the building in active, economically viable use and addressing years of deferred maintenance with appropriate materials, it delivers clear public benefit while leaving the heritage asset in better condition than found.

It is worth noting that various alterations that were not sympathetic to the historic status of this building were carried out by previous owners prior to the listing of the property and certainly prior to the purchase of this property by the current owner.

These alterations include the installation of a uPVC door and window on the first floor to the rear of the property at 33 King Street as well as the removal and apparent disposal of original internal oak doors.

Davis

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Chartered Civil & Structural Engineers
Penwortham
Preston

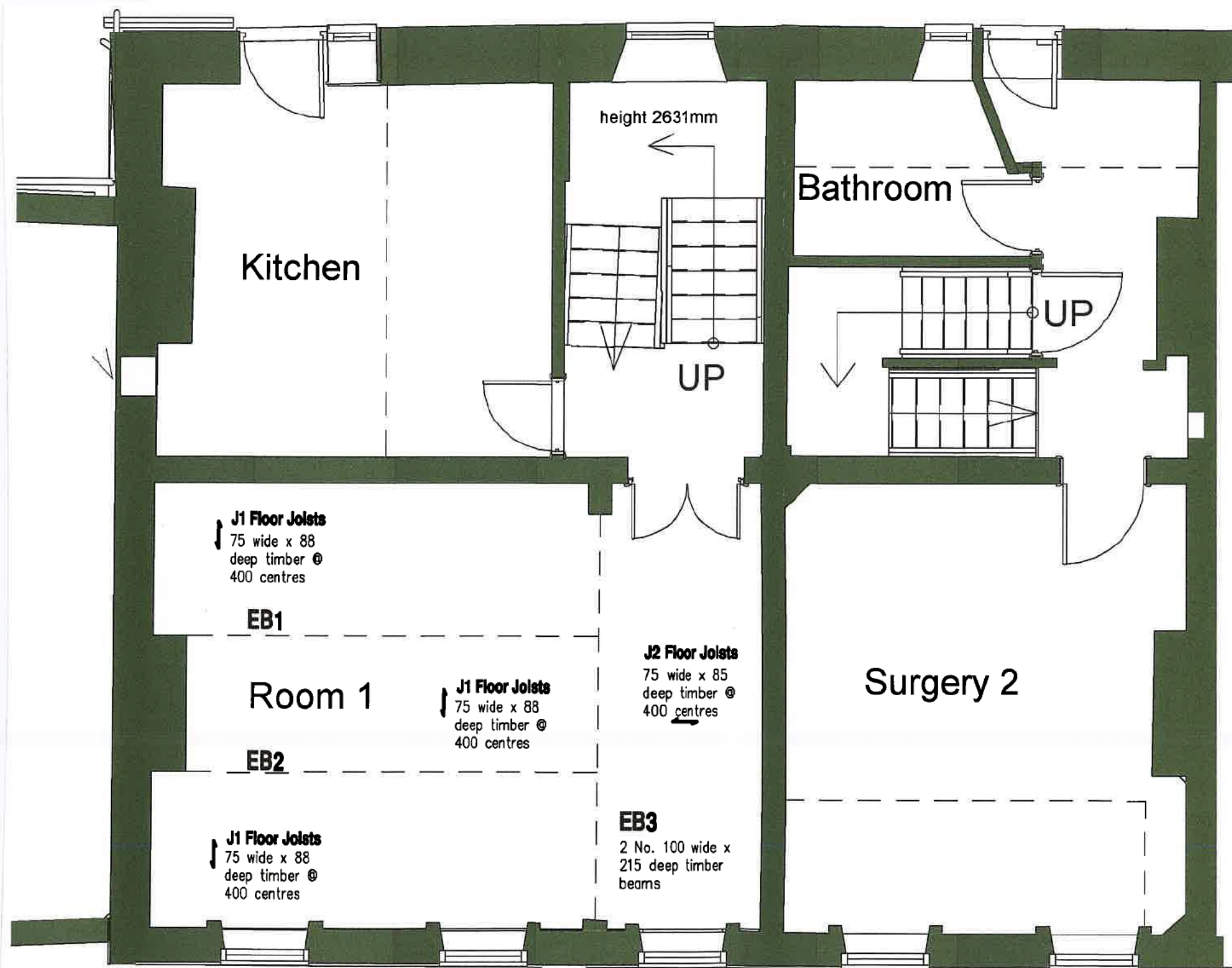
STRUCTURAL CALCULATIONS FOR PROPOSED INTERNAL MODIFICATIONS

MACFARLANE DENTAL PARTNERSHIP
33A KING STREET
WHALLEY

PROJECT No. 10303



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		Section		Sheet no./rev.	
Calcs. by J.D.	Date Feb. 2025	Date		App'd by	Date



EXISTING FIRST FLOOR PLAN
(Showing structure over)

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2

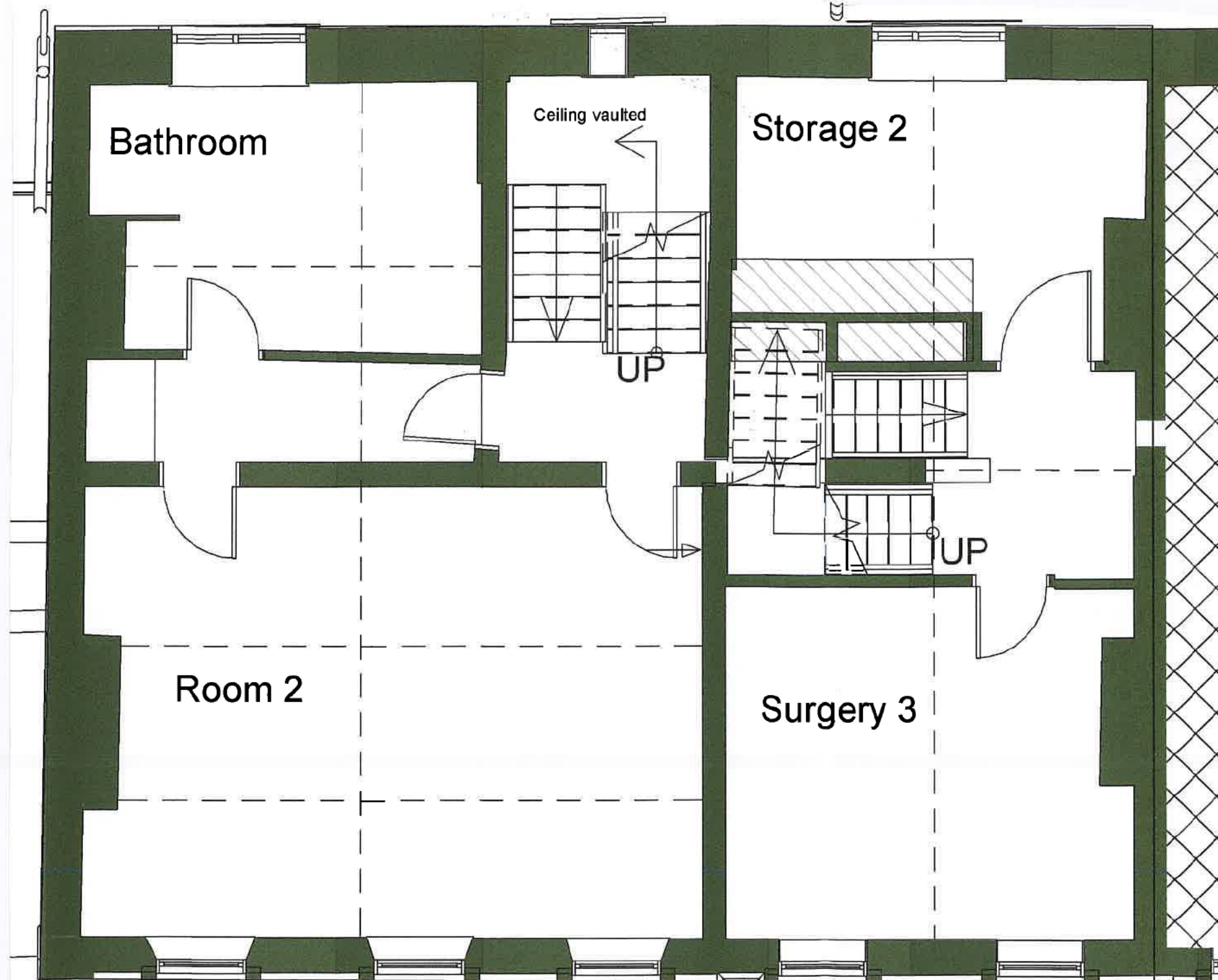
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3

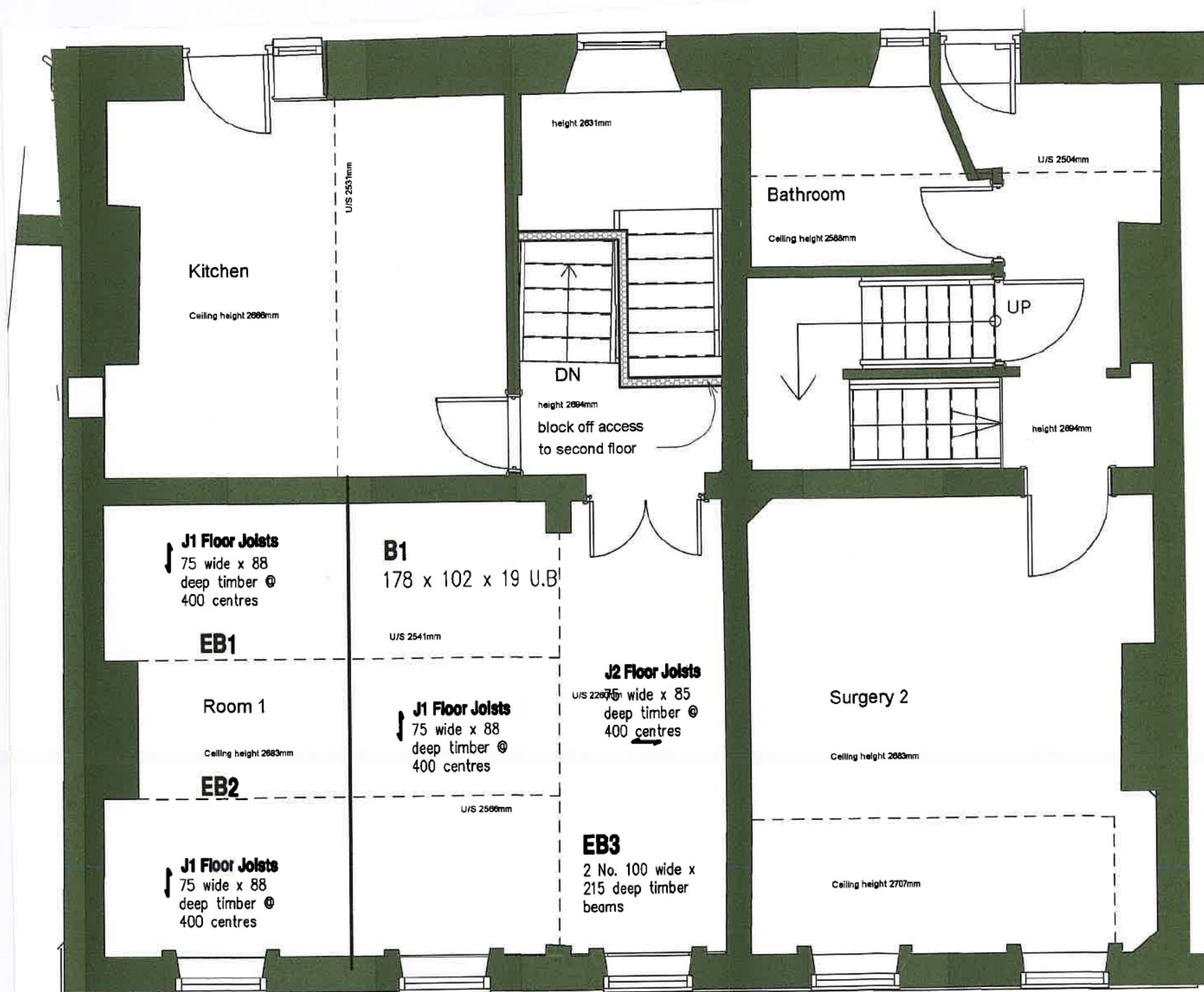
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PROPOSED FIRST FLOOR PLAN
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Scale 1:50

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4

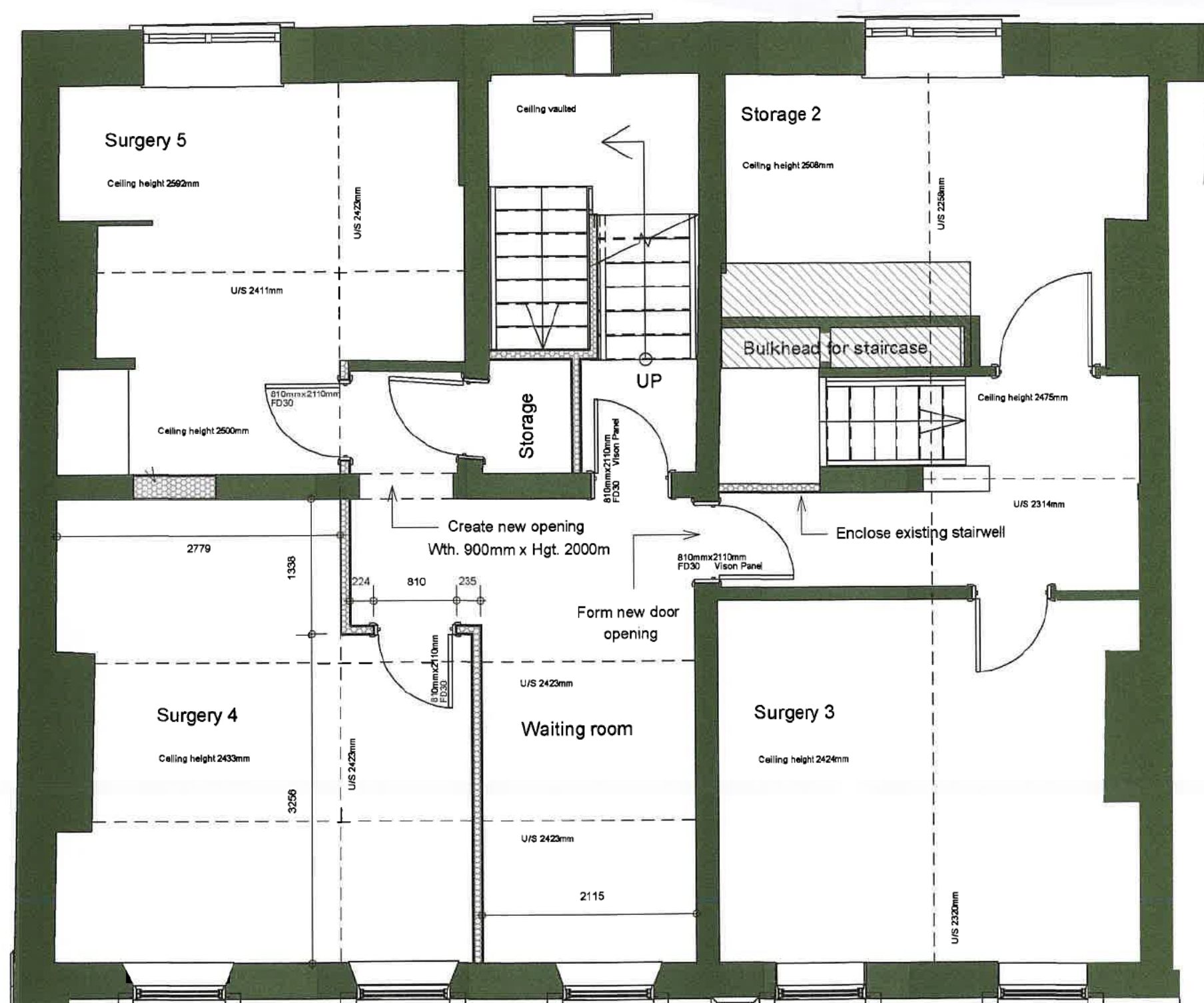
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PROPOSED SECOND FLOOR PLAN
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5

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J1 FLOOR JOISTS (SPAN=1.6m).

FLOOR LL = $0.4 \times 2 = 0.8 \text{ kN/m}$

DL = ~~1.4~~ $0.6 = 0.24 \text{ kN/m}$



Beam: existing floor joists J1

Span: 1.6 m.

	Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp
U D	o.w.	0.1	0		L	0.08	0.08
U L		0.8	0		L	0.64	0.64
U D		0.24	0		L	0.19	0.19
Total load: 1.82 kN						0.91	0.91
Dead:						0.27	0.27
Live:						0.64	0.64

Load types: U: UDL D: Dead; L: Live (positions in m. from R1)

Maximum B.M. = 0.365 kNm at 0.80 m. from R1

Maximum S.F. = 0.912 kN at 0.00 m. from R1

Live load deflection = $0.068 \times 10^9 / EI$ at 0.80 m. from R1 (E in N/mm^2 , I in cm^4)

Total deflection = $0.097 \times 10^9 / EI$ at 0.80 m. from R1

Timber beam calculation to BS5268 Part 2: 2002 using C24 timber

Use 75 x 88 C24 2.8 kg/m approx

$z = 96.80 \text{ cm}^3$ $I = 426 \text{ cm}^4$

Timber grade: C24 Load sharing system: $K_8 = 1.1$ [§2.10.11]

K_3 (loading duration factor) = 1.00 (long term)

K_7 (depth factor) = $(300/88)^{0.11} = 1.14$ [§2.10.6] K_8 (load sharing factor) = 1.1 [§2.9,2.10]

$E = 10,800 \text{ N/mm}^2$ (E_{mean})

Bending

Permissible bending stress, $\sigma_{m,adm} = \sigma_{m,g} \cdot K_3 \cdot K_7 \cdot K_8 = 7.5 \times 1.00 \times 1.14 \times 1.1 = 9.44 \text{ N/mm}^2$

Applied bending stress, $\sigma_{m,a} = 0.365 \times 1000 / 96.8 = 3.77 \text{ N/mm}^2$ OK

Shear

Permissible shear stress, $\tau_{adm,||} = \tau_{g,||} \cdot K_3 \cdot K_8 = 0.71 \times 1.00 \times 1.1 = 0.78 \text{ N/mm}^2$

Applied shear stress, $\tau_a = 0.912 \times 1000 \times 3 / (2 \times 75 \times 88) = 0.21 \text{ N/mm}^2$ OK

Deflection

Bending deflection = $0.097 \times 10^9 / (10,800 \times 426) = 2.11 \text{ mm}$

Mid-span shear deflection = $1.2 \times 0.365 \times 10^9 / ((E/16) \times 75 \times 88) = 0.10 \text{ mm}$

Total deflection = $2.11 + 0.10 = 2.21 \text{ mm}$ ($0.0014 L$) $\leq 0.003L$ OK

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6

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J2 FLOOR JOISTS (SPAN = 1.8 m)

$$\text{FLOOR LL} = 0.4 \times 2 = 0.8 \text{ kN/m}$$

$$\text{DL} = 4 \times 0.6 = 0.24 \text{ kN/m}$$



Beam: existing floor joists J2

Span: 1.8 m.

Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp
U D o.w.	0.1	0		L	0.09	0.09
U L	0.8	0		L	0.72	0.72
U D	0.24	0		L	0.22	0.22
Total load: 2.05 kN					1.03	1.03
Dead:					0.31	0.31
Live:					0.72	0.72

Load types: U: UDL D: Dead; L: Live (positions in m. from R1)

Maximum B.M. = 0.462 kNm at 0.90 m. from R1

Maximum S.F. = 1.026 kN at 0.00 m. from R1

Live load deflection = $0.109 \times 10^8 / EI$ at 0.90 m. from R1 (E in N/mm^2 , I in cm^4)

Total deflection = $0.156 \times 10^8 / EI$ at 0.90 m. from R1

Timber beam calculation to BS5268 Part 2: 2002 using C24 timber

Use 75 x 88 C24 2.8 kg/m approx

$$z = 96.80 \text{ cm}^3 \quad I = 426 \text{ cm}^4$$

Timber grade: C24 Load sharing system: $K_9 = 1.1$ [§2.10.11]

K_3 (loading duration factor) = 1.00 (long term)

K_7 (depth factor) = $(300/88)^{0.11} = 1.14$ [§2.10.6] K_8 (load sharing factor) = 1.1 [§2.9.2.10]

$E = 10,800 \text{ N/mm}^2$ (E_{mean})

Bending

Permissible bending stress, $\sigma_{m,adm} = \sigma_{m,g} \cdot K_3 \cdot K_7 \cdot K_8 = 7.5 \times 1.00 \times 1.14 \times 1.1 = 9.44 \text{ N/mm}^2$

Applied bending stress, $\sigma_{m,a} = 0.462 \times 1000 / 96.8 = 4.77 \text{ N/mm}^2$ OK

Shear

Permissible shear stress, $\tau_{adm,II} = \tau_{g,II} \cdot K_3 \cdot K_8 = 0.71 \times 1.00 \times 1.1 = 0.78 \text{ N/mm}^2$

Applied shear stress, $\tau_a = 1.03 \times 1000 \times 3 / (2 \times 75 \times 88) = 0.23 \text{ N/mm}^2$ OK

Deflection

Bending deflection = $0.156 \times 10^8 / (10,800 \times 426) = 3.39 \text{ mm}$

Mid-span shear deflection = $1.2 \times 0.462 \times 10^6 / ((E/16) \times 75 \times 88) = 0.12 \text{ mm}$

Total deflection = $3.39 + 0.12 = 3.51 \text{ mm}$ (0.0020 L) $\leq 0.003 \text{ L}$ OK

B1 (SPAN = 4.8m)

FLOOR LL = $2.3 \times 2 = 4.6 \text{ kN/m}$

DL = $0.6 = 1.4 \text{ m}$

 4.8

Beam: B1

Span: 4.8 m.

	Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp
U D	o.w.	0.25	0		L	0.60	0.60
U L		4.6	0		L	11.04	11.04
U D		1.4	0		L	3.36	3.36
Total load: 30.00 kN						15.00	15.00
Dead:						3.96	3.96
Live:						11.04	11.04

Load types: U: UDL D: Dead; L: Live (positions in m. from R1)

Maximum B.M. = 18.00 kNm at 2.40 m. from R1

Maximum S.F. = 15.00 kN at 0.00 m. from R1

Live load deflection = $31.8 \times 10^8 / EI$ at 2.40 m. from R1 (E in N/mm^2 , I in cm^4)

Total deflection = $43.2 \times 10^8 / EI$ at 2.40 m. from R1

Steel beam calculation to BS449 Part 2 using S355 steel

SECTION SIZE : 203 x 133 x 25 UB S355

$D=203.2 \text{ mm}$ $B=133.2 \text{ mm}$ $t=5.7 \text{ mm}$ $T=7.8 \text{ mm}$ $I_x=2,340 \text{ cm}^4$ $r_y=3.10 \text{ cm}$ $Z_x=230 \text{ cm}^3$

Bending

$L_E/r_y = 4.80 \times 100/3.10 = 155$ $D/T = 26.1$

Permissible bending stress, $p_{bc} = 100.5 \text{ N/mm}^2$ (Table 3b)

Actual bending stress, $f_{bc} = 18.00 \times 1000/230 = 78.3 \text{ N/mm}^2$ OK

Shear

Maximum shear in web, $f_s = 15.00 \times 1000/(5.7 \times 203.2) = 13.0 \text{ N/mm}^2$ OK

Beam web

Check unstiffened web capacity with load of 15.00 kN

Bearing: $p_b = 260 \text{ N/mm}^2$ (Table 9); $C1 = 39.5 \text{ kN}$; $C2 = 1.48 \text{ kN/mm}$

Buckling: $p_c = 181 \text{ N/mm}^2$ (Table 17b); $C1 = 105 \text{ kN}$; $C2 = 1.03 \text{ kN/mm}$

Minimum required stiff bearing length, $L_b = 0 \text{ mm}$

Bearing capacity, $P_w = C1 + L_b \cdot C2 = 39.5 \text{ kN} \ll \ll$

Buckling capacity, $P_x = C1 + L_b \cdot C2 = 105 \text{ kN}$

Deflection

Live load deflection = $31.8 \times 10^8 / (205,000 \times 2,340) = 6.6 \text{ mm}$ ($L/724$) OK

Total deflection = $43.2 \times 10^8 / (205,000 \times 2,340) = 9.0 \text{ mm}$ ($L/533$)

Combined bending and shear check (14.c)

Check $(f_{bc}/p_{bc})^2 + (f_s/p_s)^2 = 0.606$ at 2.40 m. (≤ 1.25 OK) [14.c]

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	Section		Sheet no./rev. 8		
	Calcs. by J.D.	Date Feb. 2025		Date	App'd by

EB1 (SPAN = 2.5m),

FLOOR LL = $1.5 \times 2 = 3.0 \text{ kN/m}$

DL = $4 \times 0.6 = 0.9 \text{ m}$



Beam: EB1

Span: 2.5 m.

	Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp
U D	o.w.	0.15	0		L	0.19	0.19
U L		3	0		L	3.75	3.75
U D		0.9	0		L	1.13	1.13
Total load: 10.13 kN						5.06	5.06
Dead:						1.31	1.31
Live:						3.75	3.75

Load types: U: UDL D: Dead; L: Live (positions in m. from R1)

Maximum B.M. = 3.16 kNm at 1.25 m. from R1

Maximum S.F. = 5.06 kN at 0.00 m. from R1

Live load deflection = $1.53 \times 10^8 / EI$ at 1.25 m. from R1 (E in N/mm^2 , I in cm^4)

Total deflection = $2.06 \times 10^8 / EI$ at 1.25 m. from R1

Timber beam calculation to BS5268 Part 2: 2002 using C24 timber

Use 200 x 200 C24 16.8 kg/m approx

$z = 1,333 \text{ cm}^3$ $I = 13,333 \text{ cm}^4$

Timber grade: C24 Single member: No load sharing

K_3 (loading duration factor) = 1.00 (long term)

K_7 (depth factor) = $(300/200)^{0.11} = 1.05$ [§2.10.6] K_8 (load sharing factor) = 1.0 [§2.9, 2.10]

$E = 7,200 \text{ N/mm}^2$ (E_{min})

Bending

Permissible bending stress, $\sigma_{m,adm} = \sigma_{m,g} \cdot K_3 \cdot K_7 \cdot K_8 = 7.5 \times 1.00 \times 1.05 \times 1.0 = 7.84 \text{ N/mm}^2$

Applied bending stress, $\sigma_{m,a} = 3.16 \times 1000 / 1333 = 2.37 \text{ N/mm}^2$ OK

Shear

Permissible shear stress, $\tau_{adm,II} = \tau_{g,II} \cdot K_3 \cdot K_8 = 0.71 \times 1.00 \times 1.0 = 0.71 \text{ N/mm}^2$

Applied shear stress, $\tau_a = 5.06 \times 1000 \times 3 / (2 \times 200 \times 200) = 0.19 \text{ N/mm}^2$ OK

Deflection

Bending deflection = $2.06 \times 10^8 / (7,200 \times 13,333) = 2.15 \text{ mm}$

Mid-span shear deflection = $1.2 \times 3.16 \times 10^6 / ((E/16) \times 200 \times 200) = 0.21 \text{ mm}$

Total deflection = $2.15 + 0.21 = 2.36 \text{ mm}$ ($0.0009 L$) $\leq 0.003L$ OK

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EB3 (SPAN = 4.4 m).

FLOOR LL = $1.9 \times 2 = 3.8$

DL = $1.1 \times 1 = 1.1$

STUDDING $2.6 \times 1 = 2.6 \text{ kN/m}$

$\Sigma \text{LL} = 3.8 \text{ kN/m}$
 $\Sigma \text{DL} = 3.7$



Beam: EB3

Span: 4.4 m.

Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp
U D o.w.	0.1	0		L	0.22	0.22
U L	3.8	0		L	8.36	8.36
U D	3.7	0		L	8.14	8.14
Total load: 33.44 kN					16.72	16.72
Dead:					8.36	8.36
Live:					8.36	8.36

Load types: U: UDL D: Dead; L: Live (positions in m. from R1)

Maximum B.M. = 18.39 kNm at 2.20 m. from R1

Maximum S.F. = 16.72 kN at 0.00 m. from R1

Live load deflection = $18.5 \times 10^8 / EI$ at 2.20 m. from R1 (E in N/mm^2 , I in cm^4)

Total deflection = $37.1 \times 10^8 / EI$ at 2.20 m. from R1

Timber beam calculation to BS5268 Part 2: 2002 using C24 timber

Use 200 x 215 C24 18.1 kg/m approx

$z = 1,541 \text{ cm}^3$ $I = 16,564 \text{ cm}^4$

Timber grade: C24 2 members acting together: $K_8 = 1.1$ [§2.9]

K_3 (loading duration factor) = 1.00 (long term)

K_7 (depth factor) = $(300/215)^{0.11} = 1.04$ [§2.10.6] K_8 (load sharing factor) = 1.1 [§2.9, 2.10]

$E = 7,200 \times 1.14 = 8,208 \text{ N/mm}^2$ ($E_{\min} \cdot K_9$)

Bending

Permissible bending stress, $\sigma_{m,adm} = \sigma_{m,g} \cdot K_3 \cdot K_7 \cdot K_8 = 7.5 \times 1.00 \times 1.04 \times 1.1 = 8.56 \text{ N/mm}^2$

Applied bending stress, $\sigma_{m,a} = 18.39 \times 1000 / 1541 = 11.94 \text{ N/mm}^2$ FAIL

Shear

Permissible shear stress, $\tau_{adm,II} = \tau_{g,II} \cdot K_3 \cdot K_8 = 0.71 \times 1.00 \times 1.1 = 0.78 \text{ N/mm}^2$

Applied shear stress, $\tau_a = 16.72 \times 1000 \times 3 / (2 \times 200 \times 215) = 0.58 \text{ N/mm}^2$ OK

Deflection

Bending deflection = $37.09 \times 10^8 / (8,208 \times 16,564) = 27.28 \text{ mm}$

Mid-span shear deflection = $1.2 \times 18.39 \times 10^8 / ((E/16) \times 200 \times 215) = 1.00 \text{ mm}$

Total deflection = $27.28 + 1.00 = 28.28 \text{ mm}$ ($0.0064 L$) $> 0.003L$ FAIL

Member fails in bending and deflection

EXISTING TIMBER BEAM INADEQUATE

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Project Number

10303

Section

Sheet no./rev.

10

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Beam: EB3**Span: 4.4 m.**

	Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp
U D	o.w.	0.25	0		L	0.55	0.55
U L		3.8	0		L	8.36	8.36
U D		3.7	0		L	8.14	8.14
Total load: 34.10 kN						17.05	17.05
Dead:						8.69	8.69
Live:						8.36	8.36

Load types: U: UDL D: Dead; L: Live (positions in m. from R1)

Maximum B.M. = 18.76 kNm at 2.20 m. from R1

Maximum S.F. = 17.05 kN at 0.00 m. from R1

Live load deflection = $18.5 \times 10^6 / EI$ at 2.20 m. from R1 (E in N/mm^2 , I in cm^4)

Total deflection = $37.8 \times 10^6 / EI$ at 2.20 m. from R1

Timber beam calculation to BS5268 Part 2: 2002 using C24 timber

Use **200 x 300 C24** 25.2 kg/m approx

$z = 3,000 \text{ cm}^3$ $I = 45,000 \text{ cm}^4$

Timber grade: C24 2 members acting together: $K_8 = 1.1$ [§2.9]

K_3 (loading duration factor) = 1.00 (long term)

K_7 (depth factor) = 1.00 [§2.10.6] K_8 (load sharing factor) = 1.1 [§2.9,2.10]

$E = 7,200 \times 1.14 = 8,208 \text{ N/mm}^2$ ($E_{min} \cdot K_9$)

Bending

Permissible bending stress, $\sigma_{m,adm} = \sigma_{m,g} \cdot K_3 \cdot K_7 \cdot K_8 = 7.5 \times 1.00 \times 1.00 \times 1.1 = 8.25 \text{ N/mm}^2$

Applied bending stress, $\sigma_{m,a} = 18.76 \times 1000 / 3000 = 6.25 \text{ N/mm}^2$ OK

Shear

Permissible shear stress, $\tau_{adm,||} = \tau_{g,||} \cdot K_3 \cdot K_8 = 0.71 \times 1.00 \times 1.1 = 0.78 \text{ N/mm}^2$

Applied shear stress, $\tau_a = 17.05 \times 1000 \times 3 / (2 \times 200 \times 300) = 0.43 \text{ N/mm}^2$ OK

Deflection

Bending deflection = $37.82 \times 10^6 / (8,208 \times 45,000) = 10.24 \text{ mm}$

Mid-span shear deflection = $1.2 \times 18.76 \times 10^6 / ((E/16) \times 200 \times 300) = 0.73 \text{ mm}$

Total deflection = $10.24 + 0.73 = 10.97 \text{ mm}$ ($0.0025 L$) $\leq 0.003L$ OK

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10303

Section

Sheet no./rev.

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Beam: EB3

Span: 4.4 m.

	Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp
U D	o.w.	0.4	0		L	0.88	0.88
U L		3.8	0		L	8.36	8.36
U D		3.7	0		L	8.14	8.14
Total load: 34.76 kN						17.38	17.38
Dead:						9.02	9.02
Live:						8.36	8.36

Load types: U: UDL D: Dead; L: Live (positions in m. from R1)

Maximum B.M. = 19.12 kNm at 2.20 m. from R1

Maximum S.F. = 17.38 kN at 0.00 m. from R1

Live load deflection = $18.5 \times 10^8 / EI$ at 2.20 m. from R1 (E in N/mm^2 , I in cm^4)

Total deflection = $38.6 \times 10^8 / EI$ at 2.20 m. from R1

Steel beam calculation to BS449 Part 2 using S355 steel

SECTION SIZE : 2No 178 x 102 x 19 UB S355

$D=177.8$ mm $B=101.2$ mm $t=4.8$ mm $T=7.9$ mm $I_x=1,360$ cm⁴ $r_y=2.37$ cm $Z_x=153$ cm³ (per section)

Bending

$L_E/r_y = 4.40 \times 100/2.37 = 186$ $D/T = 22.5$

Permissible bending stress, $p_{bc} = 91.9$ N/mm² (Table 3b)

Actual bending stress, $f_{bc} = 19.12 \times 1000/(2 \times 153) = 62.5$ N/mm² OK

Shear

Maximum shear in web, $f_s = 17.38 \times 1000/(2 \times 4.8 \times 177.8) = 10.2$ N/mm² OK

Beam web

Check unstiffened web capacity with load of $17.38/2 = 8.690$ kN

Bearing: $p_b = 260$ N/mm² (Table 9); $C1 = 33.5$ kN; $C2 = 1.25$ kN/mm

Buckling: $p_c = 180$ N/mm² (Table 17b); $C1 = 76.8$ kN; $C2 = 0.864$ kN/mm

Minimum required stiff bearing length, $L_b = 0$ mm

Bearing capacity, $P_w = C1 + L_b.C2 = 33.5$ kN <<<

Buckling capacity, $P_x = C1 + L_b.C2 = 76.8$ kN

Deflection

Live load deflection = $18.5 \times 1e8/(2 \times 205,000 \times 1,360) = 3.3$ mm ($L/1323$) OK

Total deflection = $38.6 \times 1e8/(2 \times 205,000 \times 1,360) = 6.9$ mm ($L/636$)

Combined bending and shear check (14.c)

Check $(f_{bc}/p_{bc})^2 + (f_s/p_s)^2 = 0.462$ at 2.20 m. (≤ 1.25 OK) [14.c]

Sections to be bolted together with tube spacers or suitable alternative connection at max 1.5m c/s

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10303

Section

Sheet no./rev.

12

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L1 TO L4 (SPAN = 1.1 m)WALL SAY $1.5 \times 2 = 3 \text{ kN/m}$ FLOOR LL = $1.5 \times 2 = 3 \text{ kN/m}$ DL = $0.6 = 0.9 \text{ kN/m}$ $\Sigma \text{LL} = 3 \text{ kN/m}$ $\Sigma \text{DL} = 3.9 \text{ kN/m}$ 

Beam: L1 TO L4

Span: 1.1 m.

	Load name	Loading w1	Start x1	Loading w2	End x2	R1comp	R2comp
U L		3	0		L	1.65	1.65
U D		3.9	0		L	2.14	2.14
Total load: 7.59 kN						3.80	3.80
Dead:						2.14	2.14
Live:						1.65	1.65

Load types: U: UDL D: Dead; L: Live (positions in m. from R1)

Maximum B.M. = 1.04 kNm at 0.55 m. from R1

Maximum S.F. = 3.79 kN at 0.00 m. from R1

S4

Also

FacedS4

ChemS4

ColourS4

:

100

100

Load Table

O/all Length	Clear Span	Eff. Span	Allowable Load - kN/m			
			MR (A)	SR100 (B)	SR150 (B)	Limiting (C)
900	700	780	36.75	34.27		34.27
1100	900	980	23.18	27.22		23.18
1200	1000	1080	19.04			19.04
1500	1200	1280	13.48			13.48
1800	1500	1580	8.75			8.75
2100	1800	1880	6.10			6.10
2400	2100	2180	4.47			4.47
2700	2400	2480	3.39			3.39
3000	2700	2780	2.64			2.64
3300	3000					
3600	3200					

Section Properties

Height	100mm	Vco 100	20.21 kN
Width	100mm	Vco 100/1.5	13.47 kN
Ms	2.815 kNm	Vco 150	21.39 kN
Mu	5.525 kNm	Vco 150/1.5	14.26 kN
Mu/1.5	3.683 kNm	Effective Depth	80mm
Limiting Mr	2.815 kNm	Self Weight	26 kg/m

 $M = 2.8 \text{ kNm} < 1.04 \text{ kNm} \therefore \text{OK USE S4}$ $V = 13.47 \text{ kN} < 3.79 \text{ kN} \therefore \text{OK LINTEL}$

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	Section		Sheet no./rev. 13	
	Calcs. by J.D.	Date Feb. 2025		Date

PADSTONES

Blockwork solid 100 wide 3.5N/mm² strength block $f_k = 3.5\text{N/mm}^2$, $\gamma_m = 3.5$

Allowable local stress = $1.5 f_k / \gamma_m = (1.5 \times 3.5) / 3.5 = \underline{1.5\text{N/mm}^2}$

B1

$$N_{ULT} = 1.4(4) + 1.6(11) = 5.6 + 17.6 = 23.2\text{ kN}$$

TRY 180 x 10 x 10 STEEL SPREADER PLATE

$$f_c = \frac{23.2 \times 10^3}{180 \times 100} = 1.29\text{ N/mm}^2 < 1.5 \therefore \text{OK.}$$

EB3

$$N_{ULT} = 1.4(9) + 1.6(8.4) = 12.6 + 13.4 = 26\text{ kN}$$

TRY 150 BEARING

$$f_c = \frac{26 \times 10^3}{150 \times 102 \times 2} = 0.84\text{ N/mm}^2 < 1.5 \therefore \text{OK.}$$

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	Section				Sheet no./rev.	
	Calcs. by J.D.	Date Feb. 2025	Checked by	Date	App'd by	Date

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10/06/2026

Property: First Floor, 33 King Street, Whalley
Client: Julie Macfarlane
Survey Date: 09 June 2026
Report Reference: Whalley shop first floor

Executive Summary

Following a visual inspection of the first-floor timber flooring at 33 King Street, Whalley, significant floor deflection and unevenness have been identified throughout the inspected area. Whilst the existing timber floorboards appear generally free from visible signs of active woodworm infestation, wet rot or dry rot, the floor construction exhibits excessive settlement towards the centre of the room, substantial movement underfoot and numerous historic repairs and alterations.

The overall condition of the floor is considered unsuitable for direct installation of modern floor finishes without remedial works. It is our professional opinion that the most practical and cost-effective solution is the installation of a floating structural sub-floor system over the existing floorboards following localised repairs and re-fixing of loose boards.

Scope of Inspection

The inspection comprised a non-intrusive visual assessment of the exposed timber floorboards following removal of existing floor coverings. No floorboards were lifted during the inspection and therefore the condition of concealed structural timbers, joists, bearings and support walls could not be verified at this stage.

Findings

1. Floor Structure and Level

The floor exhibits significant deflection across the inspected area, with a pronounced fall towards the centre of the room. The degree of unevenness exceeds what would normally be

expected within a modern habitable environment and is likely attributable to long-term settlement and/or deflection within the supporting floor structure.

2. Condition of Floorboards

The existing timber floorboards are of traditional solid timber construction and generally remain intact.

- Significant gaps between floorboards
- Numerous historic repairs and alterations
- Differential movement between adjacent boards
- Localised splitting and edge deterioration
- Uneven board levels creating trip hazards

No visible evidence of active wood-boring insect attack, wet rot or fungal decay was identified within the exposed timber elements during the inspection.

3. Acoustic Performance

The existing floor construction provides limited acoustic separation. The combination of open joints, board movement and ageing construction is likely contributing to both airborne and impact sound transmission between adjoining occupancies.

Photographic Schedule

Photograph 1 – General Floor Condition



Observation: Historic repairs visible together with uneven board alignment and evidence of long-term movement.

Photograph 2 – Evidence of Floor Deflection



Observation: Low-level view demonstrating significant unevenness and floor movement.

Photograph 3 – Historic Repairs and Alterations



Observation: Multiple sections of flooring have been lifted and reinstated over time.

Photograph 4 – Excessive Gaps Between Boards



Observation: Open joints visible between boards, reducing stability and acoustic performance.

Photograph 5 – General Room View



Observation: Illustrates the extent of the floor condition across the room.

Photograph 6 – General Condition and Unevenness



Observation: Additional view highlighting irregular board levels and settlement.

Photograph 7 – Existing Floor Prior to Exposure



Observation: Provides context to the inspection area before complete exposure of the floorboards.

Recommendations

1. Secure all loose floorboards.
2. Carry out localised repairs to damaged boards.
3. Install a suitable acoustic isolation layer.
4. Overlay the existing floor with a minimum 18mm structural flooring-grade board.
5. Install final floor finishes in accordance with manufacturer recommendations.

Professional Conclusion

Based upon our visual inspection, the existing timber floorboards remain generally serviceable; however, the floor as a whole is considered to be in poor condition due to excessive deflection, significant unevenness and ongoing movement. A complete floor replacement is not considered necessary at this stage.

The preferred solution is the installation of a floating structural sub-floor system over the existing floor construction, providing a stable, level and habitable surface whilst improving acoustic performance between neighbouring properties.

Prepared by

Martin Procter/Mike Wilson
Directors
Silversprings Construction Ltd

