

THE OLD RECTORY
BOLTON BY BOWLAND

STRUCTURAL INSPECTION REPORT



OCTOBER 2025

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1.0 BRIEF

1.1 Jacqui Kingswell Structural Engineer has been asked to undertake a structural inspection of The Old Rectory, Bolton by Bowland, BB7 4NP by Overton Architects on behalf of the owners. The inspection has been requested to address possible damage and instability of the structure caused by deliberate water damage and unlawful alterations undertaken by a tenant.

1.2 The inspection has been carried out on 13th May 2025. At the time of the inspection it was dry and warm.

1.3 No destructive investigation was undertaken. All observations are made from ground level. Access to the roof void was restricted by the condition of the ceiling joists and lack of safe access.

1.4 The inspection is intended to address issues caused by the flooding resulting from severing of a water pipe in the roof void, and stability issues arising from removal of floors and excavations under the front of the house.

2.0 GENERAL INFORMATION

2.1 The old rectory is a substantial extended detached period property with a grade II listing. The oldest part of the property is believed to be on the north side with a later Georgian slate covered hipped roof with eaves overhangs and rendered random rubble external walls extension added on the south side. A 1950s alteration is understood to be across the north façade. The lower eaves to the front elevation has resulted in intermediate floor levels. To the east end there is a modern addition dating from 2002. The modern addition is not included in the inspection.

2.2 There is a vaulted cellar under the Georgian extension, on the south side of the property with two floors of accommodation above and a hipped roof over. The roof structure comprises timber rafters and purlins. The purlins are supported at kingpost trusses at the hip/ridge intersections and a substantial central brick cross wall which appears to have been chimney flues, but with masonry now reduced below the roof line. The roof covering is underlain by felt which appears in poor condition generally. Ceiling joists are situated substantially lower than the eaves line. Nominal hangers and binders suspend the lath and plaster ceiling. First floor joists in the Georgian part of the house span east-west and are assumed to be supported at timber span breaker beams hidden above the existing ceilings.

2.3 The accommodation on the north side of the house sits beneath a mono pitch extension to the main hipped roof. The rafters are supported at purlins spanning between load bearing masonry internal and external walls. There is a central stairwell. On the west side there is an en suite bathroom at upper first floor level, a bedroom at lower first floor and an area where wcs have been added (unlawfully) at ground floor level. On the east side the ground floor, lower first and upper first floors have been unlawfully stripped out. The original ground levels have been lowered substantially by excavation which extends beneath the level of the original wall bases. There is therefore a void extending from below basement level right up to the underside of the mono pitch roof.

3.0 OBSERVATIONS

3.1 ROOF STRUCTURE:

3.1.1 The water damage was caused by severing of a pipe above the en suite to the principal bedroom at the south east corner. There is severe damage to the ceiling above the en suite with saturated plaster debonding from timber laths. Ceiling joists at the east end of the house generally span front-back (north south)



Damage to Bed 1 En Suite Ceiling and Principal Bedroom adjacent

3.1.2 The principal bedroom at the south east corner has cracking and normal age related damage to the ceiling as well as typical shearing at the junction of the en suite studwork to the rear external wall.

3.1.3 To the west of the original masonry cross wall the ceiling joists span east-west. Support at the masonry cross wall is poor with timbers angled off (probably repurposed rafters) and with minimal bearing onto the masonry.



Ceiling over En Suite and West End minimally supported Ceiling at Cross Wall

3.1.4 The king post trusses appeared in reasonable condition viewed from the access hatch and unaffected by flood damage. The horizontal tie members of the trusses are situated around 450mm above ceiling level. In the bathroom at the north west corner the rafters are carried by timber purlins spanning to the masonry at the side of the stairwell. Walls in the bathroom are lined but show signs of damp.

3.1.5 The ceiling over the stairwell is damp stained and the timber finish to the staircase below has warped and lifted.



Stairwell

3.1.6 Over the void to the east of the stairwell there are two steel purlins believed to be part of the modern extension works. Rafters seem to be propped off another steel beam which has a lifting mechanism attached to it. The rafters only span around 2m on plan so standard 150mm deep timbers would be adequate.



Roof Structure over Void

3.2 FIRST FLOOR:

3.2.1 Ceiling finishes are generally affected by the flooding and age related cracking with joists having inadequate support, noted at the cross wall. At lower first floor the ceiling of the coach room bedroom is badly affected by black mould and will need replacing. To the east of the stairwell the upper and lower first floors have been stripped out.



Coach Bedroom and Void with removed floors

3.2.2 The first floor joists span east west in the Georgian addition. Due to the substantial spans there must be timber span breaker beams to support the joists over the large reception rooms at ground floor level. There is a slope evident in the first floor towards the west end of the house. Movement around the stud partition/masonry junctions and deformation of door openings is evidence of deflection of timbers supporting the partition and general floor loading. Timbers subject to saturation lose capacity and will deflect further. Ceilings have been lowered in areas to the east of the cross wall and a corridor formed by the addition of a studwork partition.



Typical Damage at Junctions of Stud Partitions to Masonry

3.3 GROUND FLOOR:

3.3.1 The ground floor is warped directly beneath the principal bedroom en suite due to flooding. Walls at ground floor in the two main reception rooms are badly affected by surface mould caused by the flooding.



Reception Rooms Floor Damage

3.3.2 At the north west corner unlawful alterations have been undertaken forming wc cubicles etc. These are all to be removed. An exposed timber purlin on the west end wall was noted to be in poor condition and it is recommended that it be replaced with a pre cast concrete lintel for long term durability.



Rotten Lintel

3.3.3 The ground floor to the east of the stairwell has also been removed/alterd unlawfully with significant amounts of excavation having been carried out to lower levels. The ground has been reduced to lower than the foundations of the original part of the house with underbuilding and underpinning appearing to have been carried out. Whilst there are no indications that the excavation and underbuilding has caused problems the removal of the intermediate floors is an issue, as is the stripping of the inner leaf masonry to the north wall.



Cross wall in Excavated area and underbuilding of original North Elevation

3.3.4 A new masonry cross wall has been added to the unlawfully formed basement and this will help to stabilize the external masonry. The north wall outer leaf is formed in rendered random uncoursed stone with little continuity. The brick reveals to the window openings have also been cut back further reducing the stability of the masonry. New masonry has been added to the construction at the lower levels of the excavation.



North Elevation Inner Leaf Removed and Void showing crosswall

3.3.5 A leaf of masonry also appears to have been removed from what the wall between the original construction and the Georgian extension exposing poor quality brickwork. New masonry has been constructed from the excavated levels. Some floor joists have also been introduced above the void.



Wall with Masonry Leaf Removed and 1950s North Elevation with Inner Masonry Removed

4.0 CONCLUSIONS AND RECOMMENDATIONS:

4.1. Flood damage has badly affected plaster finishes to walls and lath and plaster ceilings in parts of the property. Decorative timber floor finishes have also been damaged by the flooding and will need to be removed due to warping etc. All wall and ceiling finishes will need to be stripped to allow the structure to dry out. Timbers should be assessed once exposed but should generally be serviceable once dry. Timber lintels can be assessed once exposed. Historic timbers in external walls in particular are vulnerable to rot and should be replaced as necessary using precast concrete lintels or similar for long term durability.

4.2. Stability has been affected by the removal of the inner masonry on the north elevation where the void has been excavated. The remaining masonry is too slender, particularly with the stiffening effect of the intermediate floors having been removed. The single skin of stonework is uncoursed random masonry which has little intrinsic strength in bending due to the lack of continuity of bond. A new inner leaf should be constructed and tied to the original stone outer to reinstate the robustness of the original construction. It is recommended that specialist advice be sought regarding appropriate ties etc. Helifix have a range of specialist products for use in historic properties and should be able to provide advice. I anticipate that a full scaffold will be required for both access and to provide temporary stability/restraint to the slender masonry. The reinstatement of the upper and lower first floors can be undertaken in traditional timber and these floors will act as restraint to the north wall once in situ.

4.3 Where the internal wall has had masonry removed to expose poor quality brickwork the missing masonry can be reinstated and tied into the remaining wall. This will allow historic openings at higher levels to be retained full depth.

4.3 It is understood that the owner would be happy for the void to be left with a new suspended ground floor introduced. A ground bearing floor would not be possible due to the depth of controlled fill that would be required beneath any slab. A precast concrete floor would be suitable supported at masonry walls. Some backfilling could be undertaken to bring levels up to closer to the original ground levels. If done in a controlled manner this could provide a platform for temporary supports during the works.

4.4 The poorly supported first floor ceiling joists in the west end of the Georgian extension can be picked up at the masonry cross wall using a timber running along above the ceiling joists and fixed down into each joist. The timber can be bolted into the masonry cross wall. This should be done before general access for workers is allowed.

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