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**Structural Assessment
of
Brambles Bistro, Glenluce**



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1 Introduction

1.1 Terms of Reference

A structural assessment of Brambles Cafe, Glenluce was requested by E A Design on behalf of the owners Old Luce Development Trust. The assessment was carried out to determine the suitability of the existing building for the proposed conversion to form a community hub / café / restaurant.

The inspection of the building was carried out on 4 September 2018. The weather was fine and mild. A visual inspection of all parts of the buildings which were readily accessible was undertaken. No intrusive work was carried out to allow inspection of normally hidden parts of the building.

1.2 Scope

This report specifically addresses the structural condition and integrity of the masonry walls. The findings of this report are based on a visual inspection of accessible areas of the building. No opening up work was undertaken to inspect concealed elements such as foundations. No warranty can be given as to the condition of timbers, structural or otherwise, with regard to decay or infestation. Should such warranties be required, it will be necessary to commission a separate report by a timber/ damp proofing specialist.

2 Description

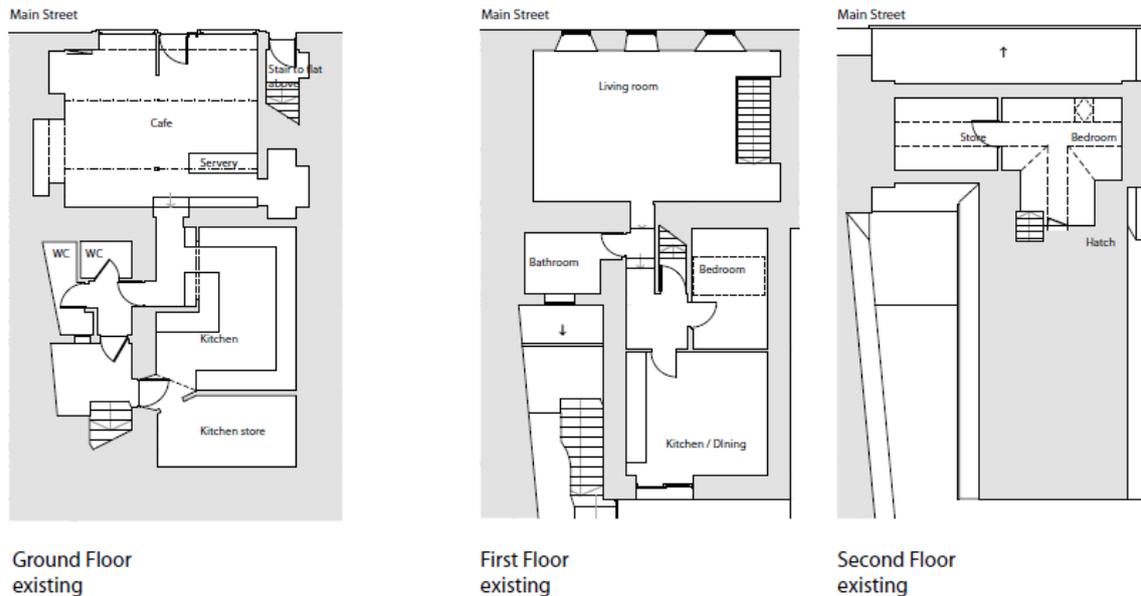
The building was formerly operated as Brambles Bistro and coffee shop with a self contained flat above which was accessed via its own front door and stair. The bistro ceased operating around 2009 and has been unoccupied since.

The building comprises three floors. The bistro formerly occupied the ground floor and the self contained flat was situated on the first and second floors.

All of the walls throughout the building are random rubble and are painted white externally. The roof is natural slate on sarking.

Prior to the inspection a complete soft strip of the interior was carried out with wall linings, ceilings and floor coverings being removed. This was deemed necessary due to concerns about the condition of the structural elements of the building.

Due to the poor condition of the roof and suspended floors the proposed refurbishment includes for replacement of these items. Consequently this report focuses on the condition of the masonry walls forming the shell of the building.



3 Proposed development

The preferred option is for conversion of the building into a single use as a café / restaurant. The proposed second floor would have a vaulted ceiling.

4 Inspection

4.1 Foundations

No attempt was made to examine the foundations or investigate the ground conditions. It is likely that for buildings of this age there are no formal foundations as such. The substantial masonry walls will have been constructed in trenches in the existing ground. There is evidence of settlement on the south west gable and the walls are generally off plumb other than the north east gable and the rear wall of the former café area which are generally plumb.

4.2 Walls

The walls are constructed in random rubble masonry which has been painted white externally.

There is a very pronounced bulging on the south east elevation (fronting Main Street). The ground floor leans out by around 20 mm / m and the external face of the first floor leans in by around 30 mm /m. The first floor joists are sitting on a steel beam above the shop front and are providing no lateral restraint to the wall. Although the first floor external elevation has an inward lean of around 20 mm / m the internal face is plumb. Due to the thickness of the masonry walls they were usually constructed of two skins of masonry with the space between being filled with smaller stone. Often there are no throughbands and consequently the two skins can de-laminate. It is possible that has happened here. As the A75 used to pass through Glenluce it is possible that vibration from traffic has exacerbated the problem. The wall head of the front elevation is in very poor condition with considerable missing and loose mortar.

The rear wall of what was the café area of the building is reasonably plumb on the both the ground and first floors.

The north east wall of the property, which is shared with the adjacent property is generally plumb and in sound condition over its full height.

There is a pend on the south west side of the property. The gable wall of what was the café area of the building has a considerable outward lean of around 40 mm / m up to the first floor ceiling. Over the height of the second floor gable the wall and the substantial chimney lean outwards by around 80 mm /m and the lime mortar is very friable.

The south west wall of what was the kitchen and store area of the café exhibits an outward lean of around 20 mm / m on the ground floor. On the first floor this wall is generally plumb. The rear of this part of the building is below ground level on the ground floor and towards the rear of the wall on the ground floor in what was the kitchen store area the wall is very damp.

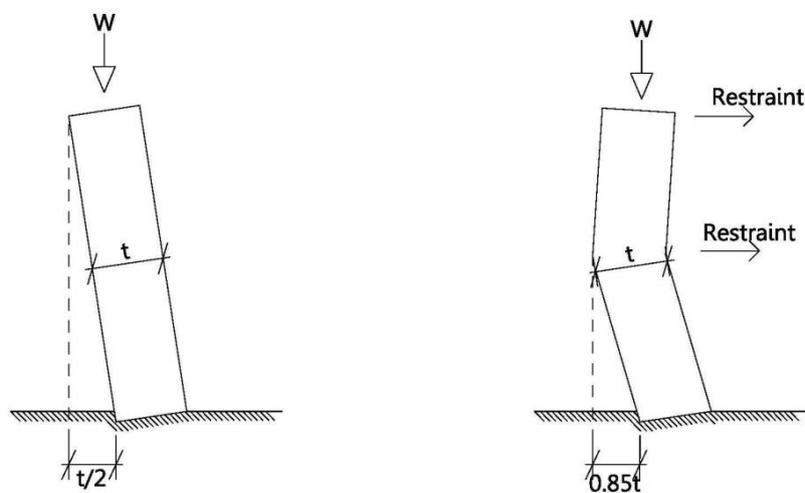
The rear wall of the former kitchen store area on the ground floor has a considerable inward lean of around 30 mm / m. There is a similar inward lean on the first floor. The ground floor wall is very wet and the original lime mortar has disintegrated over considerable areas. It is probable that this disintegration continues over the full depth of the ground floor wall.

The north east wall of the former kitchen and kitchen store area is generally plumb an in reasonable condition over its full height although it is very damp over the rear part which is below ground level.

There has been a two storey extension constructed in the past to form toilets for the café and a bathroom on the first floor for the flat above. The ground floor is constructed in masonry and the first floor in timber frame with a flat roof. This extension is in reasonably sound condition.

5 Discussion

Most of the Walls throughout the building exhibit varying degrees of leaning. In accordance with the recommendations of CIRIA Report 111 (1986) an unrestrained wall supporting a concentric load (in this case the roof) reaches precarious equilibrium at 50 per cent of wall thickness. If a lateral restraint was incorporated precarious equilibrium would be reached at 85% of the wall thickness.



With the exception of the south west gable at second floor level the lean on the walls wouldn't be considered as unstable. The south west gable at second floor level is likely to exceed the $t/2$ limit and should be considered as unstable. In addition to the leaning of the walls there are other issues affecting their integrity. The ground floor walls towards the rear of the building which are below ground level are very wet and the lime mortar has disintegrated in many places. It is likely that this deterioration is present throughout the thickness of this wall. The elevation fronting Main Street exhibits an outward lean above first floor level externally but is plumb internally. The wall would have been built plumb on both faces so it is likely that the inner and outer skins of masonry appear to have delaminated.

Considering the degree of lean and the walls and taking other factors such as wetness and mortar deterioration into account it is considered necessary to take down and rebuild parts or all of some walls.

It is recommended that the front elevation should be taken down to ground level and rebuilt. Restraint to the wall should be provided at first floor level.

The walls on the north east side of the building don't require to be taken down. Ripping and repointing of deteriorated mortar should be carried out.

The south west wall of the front part of the building ie the former café area and flat above should be taken down to first floor level and rebuilt due to the large outward lean.

The rear wall of the former café area and flat above is generally sound and only requires pointing repairs etc.

The rear wall of the former kitchen store area should be taken down to first floor level due to the inward lean. Since this wall is very wet at ground floor level and the mortar has deteriorated it would be prudent to demolish this wall to ground level and rebuild. The dampness of the rear wall extends round the corners of the side walls and if the rear wall is being demolished to ground level then the same should be considered for the below ground sections of the side walls.

The south west wall of the kitchen and kitchen store area requires general pointing repairs except for the below ground section towards the rear which should be taken down and rebuilt.

6 Conclusion

Due to leaning of the walls throughout the building and deterioration of the lime mortar due to penetrating damp there is a considerable amount of taking down and rebuilding required. Due to the extent of the rebuilding required and the likely costs involved and the possibility that the full extent of rebuilding repair may exceed what can be determined at this stage it may be more cost effective to consider total demolition and complete rebuilding. It is appreciated that there will be resistance to this option due to the Category C listed building status. It could, however, be argued in the formal planning application and consent process that this would indeed be the most pragmatic solution to development of this site.