

**The Old Hen House / Kennels**

**Harbottle**

**Red Fox Consulting Engineers**

**Project No: 20031R**

**August 2020**



## **Introduction**

Red Fox Consulting Engineers were appointed by Pauline Okane to undertake a non-intrusive, visual inspection of the Old Hen House/Kennels at Harbottle, Northumberland.

Jonnie McGill BEng (Hons) CEng MStructE carried out the inspection on the 5 August 2020. The weather was dry at the time of the inspection but followed a period of wetter weather.

A number of photographs were taken during the inspection, a selection of which are included within Appendix A of this report. The remaining photographs are available upon request.

It is proposed to convert the building into a small residential property. The purpose of this report is to comment on the current structural condition and feasibility of restoration of the building for this use.

## **Description**

The structure is a traditional, small agricultural building, rectangular on plan with a duo pitch roof. The building runs northwest to southeast and measure approximately 13m by 5m overall. The height to ridge and eaves is approximately 5.0m and 3.8m respectively. See Photograph No. 1.

The structure comprises two, distinct sections, a large section to the northwest and a small section to the southeast end.

The large section has random stone masonry walls to the northwest, northeast and southeast elevations and is largely open to the southwest. The roof comprises timber trusses supporting counter battens with slate roof covering.

The roof trusses bear onto the masonry wall to the rear and a large timber section, supported by two cast iron posts, to the front elevation. The posts sit on a dressed stone dwarf wall at low level. The floor to this area is a mix of stone flags, brickwork and open ground.

The small section to the southeast shares the wall to the northwest and has masonry walls to the northeast and southeast elevations. These northeast and southwest walls were originally random stone masonry but have been extensively repaired with blockwork. This section is completely open to the southwest and no roof is present. The floor in this area is a mix of stone and open ground.

A mortared, random coursed stone wall extends from the northwest corner of the building for approximately 15m and has a return to the northeast. The wall is approximately 1.4m high and 250mm wide with a triangular stone cope.

## **Condition**

Generally, the stonework of the building is in good condition with only minor issues apparent. There are patches of mortar loss and loose and friable mortar. Some localised areas have been repaired with cementitious mortar. See Photograph No. 2.

The bottom chords of the roof trusses have been removed which has resulting in spreading of the roof. This has pushed the front, large section timber out, leading to displacement of the stonework at either end. The front columns have been pushed out of plumb. See Photograph No's 3 & 4.

The roof covering is compromised in a number of areas which has resulted in water ingress into the building and wall head. See Photograph No. 5.

The water tables to the northwest gables have slipped, resulting in gaps between the stones. There is no water table present to the central gable. See Photograph No's 4 & 6.

Trial pitting was undertaken internally, adjacent to the rear, northeast wall. The walls are built directly off the ground and extend down by approximately 300mm into it. See Photograph No. 7.

There are a number of mature trees adjacent to the rear, northeast elevation. However, there is no evidence that these have had an effect on the main structure. See Photograph No. 8.

The lower wall extending to the northwest exhibits displacement and loss of stonework due to the tree growing within close proximity. The wall has also lost a number of coping stones and exhibits collapse of the northwest return. See Photograph No's 9 & 10.

### **Conclusion**

The stonework is generally in a good condition with only minor defects apparent. There is ongoing work to the masonry, and it is likely that this will remedy the defects. However, the use of cementitious mortar could lead to degradation of the stonework and so this should be substituted with a suitable lime mortar where applicable.

The roof is completely compromised and has led to displacement of the stonework and front cast columns. It is not possible to retain the current roof structure.

Water ingress to the wall head at both the rear wall and gables, due to missing or displaced water table and/or degraded roof covering will lead to degradation of the stone wall below.

The trees do not appear to be having a detrimental effect upon the main building but have caused displacement/collapse within the low level, northwest wall.

There is no structural reason why the building could not be converted to residential use. It is likely that a large proportion of the existing structure could be adopted in the final construction, subject to relevant design checks.

The depth of the base of the walls means that there will be no issue with introducing a new slab to all areas of the building. It is likely that the front cast columns will require a new foundation but there is no issue in installing these at that location.

### **Recommendations**

The roof and supporting structure to the southwest should be taken down and replaced with a new roof structure. New foundations will be required for the cast iron columns and front wall construction. A new roof structure should be installed above the small, southeast section.

The displaced stonework adjacent to the main front beam should be taken down and rebuilt. The water table should be reset to the northwest and reintroduced to the central gable.

Cementitious and loose mortar should be raked out and the wall repointed with a suitable lime mortar to all elevations.

Reinstatement of roof coverings and rainwater goods to stop all water ingress. It is likely that a suitable drainage system will be required to divert the surface water away from the building satisfactorily.

Replace all slabs/bare earth with a suitable reinforced concrete slab, with suitable insulation subject to building control requirements.

The coping stones to the northwest, low level wall should be reinstated. The wall should be taken down in areas of collapse and rebuilt. It may be necessary to reroute the wall run to avoid the mature trees and ongoing issues.



Appendix A – Photographs



Photograph No. 1 – General view of structure



Photograph No. 2 – typical condition of masonry





Photograph No. 3 – internal view of roof structure



Photograph No. 4 – northwest gable





Photograph No. 5 – view from rear of building



Photograph No. 6 – missing water table to central gable





Photograph No.7 – trial pit indicating base of wall





Photograph No. 8 – mature trees adjacent to rear of wall





Photograph No. 9 – displacement of northwest, low wall



Photograph No. 10 - deterioration to northwest, low wall