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## Structural Appraisal - Woodland Village Non Denominational Chapel of Rest Woodland Co Durham

For Mr Simon Land Curator  
Date: 17/01/24

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### Executive Summary

This report has been prepared by Carl Swainston, MSc (Structural Engineering) 2011, B. Eng. (Hons) (Construction Engineering) 2004, HND (Civil Engineering) 1999.

The ND Chapel of rest stands in a prominent location within the Woodland Village Cemetery, the building may be used in the future as a visitor centre and local historic hub for visitors and local people to use. (Subject to planning)  
The Curator has asked for a Structural Engineers report to ascertain the suitability for the building to be converted to a local and visitor hub.

The structure is in a fair condition for its age and does require some structural repair work this work is relatively low to medium risk and can easily be carried out by a competent builder.

There are two main defects which are the roof structure needs to be brought up to Part A compliance as the roof seems to be causing the rear wall between windows to move outwards, this is known as roof spread which is common in older structures with this type of roof.

The roof needs to be tied with a timber at either ceiling or raised depending on further investigation.

There is some sag in the ceiling which can be easily rectified by removing the ceiling altogether and strengthening the roof structure as mentioned.

The structure is not suffering from any mining subsidence or any defects associated with mining, the local search revealed that the building is in a high risk area however it is not affected by mining subsidence.

Planning and Building Control applications will be required.

## 1.0 Introduction

Carl Swainston Engineering has been asked by the curator to assess the structure and report on any issues with respect to subsidence and any other potential issues which could affect the structural stability of the structure.

The report is limited to what the engineer can see, access to the loft was possible with difficulty however the Engineer was able to assess the condition of the roof structure.

The property is not listed and there are no entries on the DCC Local Authority Planning Application web site.

The structure seems to be of solid wall construction with a traditional timber raised tie truss and rafter roof, the outside stone has been rendered.

The building sits on its own in Woodland cemetery.

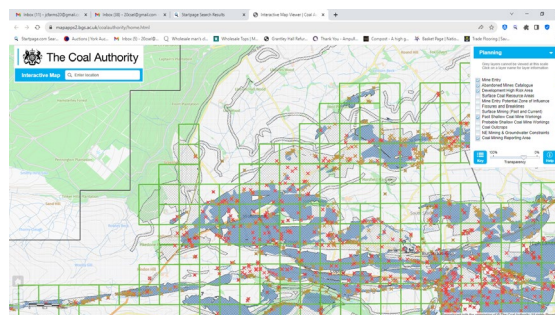
The floor is or seems to be a traditional suspended timber floor.

The property is within a high risk coal mining area, an area susceptible to shallow mine workings and is in a coal authority reporting area according to the coal authority interactive mine map.

Flood risk from surface water and ground water is very low (flood zone 1)



Chapel of Rest



Coal Authority Mine Map Location

## 2.0 Inspection

The inspection was undertaken on Tuesday 16/01/24 approximately 09:00am, the inspection was limited to the structural fabric only; no inspection of the electrical or heating system was undertaken, no inspection or survey was carried out with respect to potential contaminants like Asbestos this must be carried out by a licensed Asbestos surveyor.

The engineer was able to access all areas including limited access to the attic space

Mr Simon Land was present throughout the survey.

## 3.0 Internal Visual Inspection – Defects

Defects encountered:

1. Ground floor boarding – evidence of wood boring insect infestation

Action – treat area with a good quality insecticide and wood preserver.

Defect rating - Low risk



Wood dust on flooring

2. Ceiling – Ceiling sagging at mid span

Probable cause – ceiling joists over spanned

Action – remove ceiling and investigate Part A in terms of size of rafters and ceiling joists

Defect rating – Medium risk if untreated



Significant sag in ceiling

### 3. Roof void – new roof structure causing rear wall to spread outward

Probable cause – inadequate raised tie trusses or weight of ceiling causing overstressing at eaves

Action – calculate roof loads and check span of rafters to ascertain if the roof structure is adequate.

Defect rating – Medium risk if left untreated.



Ceiling supported by raised tie trusses

### 4.0 External Visual Inspection

The roof ridge line seems to be uneven suggesting that deflection in some of the roof structure has taken place. This is also seen in the wall panel between the two rectangular windows which has a significant lean outwards or out of plumb shift of 60mm over the length of the 1.8m level.



Ridge line uneven

### Defect list

1. Rear elevation wall panel between windows – 60mm out of plumb shift over 1.8m.

Probable cause – roof spread due to overstressing of roof trusses

Action – re-assess the roof structure and fit roof straps as lateral bracing

Defect rating – High risk if left untreated.



Out of plumb shift

2. Front window – crack at cill level

Probable cause – Local differential settlement

Action – re-point affected area

Defect rating – Low risk



Crack at window cill

## 5.0 Conclusion

The structure is in fair condition for its age, there are two areas for concern:

1. The rear wall out of plumb shift is significant and cannot be ignored.
2. The ceiling sag which also cannot be ignored.

The wall lean can only be arrested not returned to its original position due to the length of time it has taken to lean over.

Remedial works can repair the ceiling which in turn will stop the wall from leaning any further as the two defects are linked.

## 6.0 Recommendations

It is recommended that the ceiling be removed completely and the roof line be the new ceiling i.e. to act as a vault, this will automatically remove one defect and relieve stress at the eaves.

It is recommended that the structural engineer design a braced roof to comply with Part A of the Building Regulations 2013.

The engineer also recommends that the external render be removed and the original stone work be exposed as an original feature; this will also require repointing which will enhance the overall look of the building while ensuring the structure of the stone work is made sound.

Any conversion works for the change use class of the structure may require a change of use planning application under the town and country planning act.

A Building Control application would be required for a change of use and would also cover under the same application any works associated with the structural repair or remediation of the roof structure.