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Structural Report

Conversion & Extension of Redundant Agricultural Barn to From Dwelling House & Associated Works



Great Treburrick Farm, Treburrick, St Eval, PL27 7UR

Prepared By

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1.0 INTRODUCTION

1.1 Cornwall Planning Group have been instructed to visit the redundant block barns at Pine Grove Ashton, in order to inspect and report on its structural condition and suitability to be converted into one dwelling.

1.2 For the purposes of this report the front elevation of the building containing the entrance doors is assumed to face North West Elevations. It is noted that as part of the planning proposal the barn to the North of the application site will be demolished.

2.0 OBSERVATIONS

2.1 The site consists of principally one barn. A historical image identifies the block barn prior to the storm damage.



The barn to be converted is the western barn on the application site which is two story in nature and redundant.

2.2 Promontory the main agricultural barn has been constructed with a mixture of 500mm natural granite and 100mm traditional blockwork. The barn is currently split into various bays and implies historically it would have been a form of piggery or store building. As part of the conversion a non-loadbearing light weight timber insulation lining would be required to confirm to the insulation requirements. 140mm Timber Frame Closed Panel System with 38x38mm mechanically fixed battens to create service void with 15mm Plasterboard taped and skimmed. Or 35mm Gypliner System.

2.3 The barn is arranged over two levels. The main sections are split externally with defining the window/door bays.

2.4 There is a substantial concrete ground floor slab supporting the external walls already installed that would require suitably insulating and damp proofing. The existing concrete slab is suitable for residential single-story loading and it would require the following specification. 15mm finished flooring on 18mm screed board, 150mm Celotex laid over existing, 100mm Concrete Slab with 1600g Polythene DPM Radon Barrier. The existing concrete slab is free of any structural defects.

It is assumed a new timber first floor would be installed as part of the refurbishment and conversion works. Details of the flooring would be designed at the building regulations stage. The existing foundation are structurally sound.

2.5 Based on the visual inspection there were not any signs of significant defects to the framing and the principal members were not suffering from any deflection beyond normal tolerances. The openings are formed with traditional brick lintels performing well without any sign of defects or cracking. As part of the conversion the existing openings are to be utilized without any structural alterations.

2.6 The Cornish block barn was covered with a traditional roof truss prior to the collapse in the storm. It is proposed on the conversion plans that a new traditional roof structure would be installed. The existing external/internal walls were inspected as well as the foundations. The loading would be suitable for the new roof structure on the existing walls.

2.7 The roof structure(s) previously on the building were formed with traditional timber and metal roof trusses with bolted connections. The roof is finished with corrugated sheeting. Prior to the storm damage the existing roof covering was in good condition and did not essentially require any repairs/replacement compliance elements forming part of the building regulations. As part of the conversion, it is assumed a suitable 400mm rockwool or similar would be installed on a non-loadbearing flat ceiling to achieve the required u-value. In addition a natural slate roof is proposed to be installed. As advised above a new timber roof structure would be installed on the existing wall plate level of the stone/block work.

2.7 The existing elevations are rendered exposed block work or granite.

3.0 CONCLUSIONS

3.1 It is understood that the proposal is to convert the building into one dwelling. Based on our visual inspection the building is performing well under its current loading and it is assumed that as part of any conversion works a new timber stud lining wall would be constructed within the envelope of the building in order to house the insulation and ensure sufficient thermal resistance for the external walls. New internal partition walls will also be required, all of which would not be required to be loadbearing.

3.2 Any new openings to the external walls will need to be framed in order to ensure that the stability of the building is not compromised.

3.3 A new insulated floor structure will be required and the existing section of concrete around the perimeter posts of the building will need to be removed or levels could be raised in order to allow the existing concrete to remain with a new slab tied into the side of it and any insulation and finishes installed above.

3.4 The sub-structure is confirmed as adequate as no additional loading is presented onto the existing slab and internal partition walls will be constructed that can be designed to provide additional support should it so be required. However, given the principle roof structure is bearing on the existing substantial granite walling no proposals are requested in this respect.

3.5 To conclude, overall the building is performing well under its current load conditions and conversion works are not likely to jeopardise the existing structure, making the building suitable for conversion without any significant alterations or strengthening beyond that that would be required in order to make the building habitable.

Appendix

