

PRELIMINARY STRUCTURAL SURVEY
CONVERSION AGRICULTURAL BUILDING

TREWORLAS FARM

TREWORLAS

RUAN HIGH LANES

TRURO

CORNWALL

TR2 5LN

Mr N. SAVAGE

NOV 2020

[DOC REF 20/2257](#)



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PRELIMINARY STRUCTURAL APPRAISAL

1.0 SYNOPSIS

It is proposed to convert some of the existing barns from redundant agricultural buildings into residential accommodation. This appraisal describes the structure, assesses the suitability and draws the conclusion that the walls are appropriate for re-use; provided they are refurbished in accordance with the recommendations included. The roof is in need of re-covering. If the roof structure is to be reused, it may be in need of strengthening in places.

2.0 BRIEF

Scope and limitations of the report

- 2.1 This is an inspection report limited in its scope to the task as noted below. We have not inspected parts or problems, which are not relevant to the request unless noted in the report. The inspection was undertaken externally and internally as necessary, subject to access being available. The inspection was limited to a visual inspection. We have not lifted floor finishes or made exploratory holes, unless noted in the report. The report has been prepared for Mr N. Savage and, therefore, any liabilities which may arise are restricted to him and his advisors.

Location of the property

- 2.2 The property is located in the spall hamlet of Treworlas just off the A3078 at Ordinance Survey Grid reference SW 89382 38598

Task

- 2.3 To carry out a structural appraisal of the existing building for change of use.

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Inspection

2.4 The property was inspected by R S Holbrook CEng MIStructE on 13th November, 2020.

3.0 DOCUMENTS EXAMINED

3.1 The British Geological Survey Sheet for the area indicates that Portscatho Formation slates & shales underlie the site.

3.2 No details were available of structural problems that may have occurred.

3.4 No other documentary information has been located pertaining to the history of these buildings.

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4.0 DESCRIPTION OF THE STRUCTURES

- 4.1 This description omits the store at the extreme south western end, the workshop and adjoining office and store, the garage and adjacent store, and the long stable along the north west side as these are being demolished.
- 4.2 The buildings are interconnected single storey buildings with dense concrete blockwork walls, corrugated cement fibre roof off purlins and steel trusses.
- 4.3 The external walls are generally 150mm dense concrete blockwork and with a few exceptions are free of significant visible defects. Most walls have 215mm thick x 440 long dense blockwork pillars below the truss positions.
- 4.4 The lintels are generally concrete and with a few exceptions are free of significant visible defects.
- 4.5 The ground floors are all concrete and with a few exceptions are free of significant visible defects.

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5.0 OBSERVATIONS FROM INSPECTION

- 5.1 The roof purlins are generally in a reasonable state but may be undersized for the duties that they will be required to perform and may require some strengthening / upgrading to be considered suitable for their proposed duties.
- 5.2 The purlins are supported off steel angle fabricated trusses, which are generally in a reasonable state but may be undersized for the duties that they will be required to perform and may require some strengthening / upgrading to be considered suitable for their proposed duties.
- 5.3 The dense concrete blockwork, although cracked here and there appear free of any major structural defects. Testing for deleterious aggregate and cement content should be undertaken to prove the suitability.
- 5.4 The lintels are generally in a serviceable condition but may be undersized for the duties that they will be required to perform and may require some strengthening / upgrading to be considered suitable for their proposed duties.
- 5.5 The concrete ground floors appear generally in a serviceable condition but may need some notional repairs to ensure long term serviceability.
- 5.6 The rainwater goods are unserviceable and should be replaced throughout to a new drainage field.

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6.0 STRUCTURAL INVESTIGATIONS

6.1 The brief is to appraise the suitability of the existing structure for the proposed change of use; no further structural investigations are deemed necessary.

7.0 SAMPLING AND TESTING

7.1 No sampling or testing is deemed necessary for this appraisal.

8.0 DISCUSSION / CONCLUSION

8.1 With the remedial works recommended, the residual walls in the barns will be suitable for the proposed change of use.

8.2 The roof covering is failing with leaks widespread. The supporting purlins are probably undersized and in need of replacement. The steel trusses need to be refurbished and possibly strengthened if they are to be reused. It may be more economic to consider renewal with fabricated trusses at 600mm centres throughout.

8.3 The only evidence of foundation issues occurs on the southwest corner of the building, which is to be demolished. Elsewhere, the existing foundations appear to be fulfilling their duties. The proposal will apply an additional loading and prior to any works it is recommended that trial holes be dug to assess the suitability of the existing foundations and to assess if underpinning is required.

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9.0 RECOMMENDATIONS

- 9.1 Sample the blockwork masonry and concrete foundations for deleterious aggregate. Remediate as required to suit findings.
- 9.2 Ahead of any works undertake trial holes to assess the suitability of the existing foundations for their new duties and any requirement for underpinning.
- 9.3 Stitch repair any cracks with helifix ties where appropriate.
- 9.4 Carefully examine all the lintels and replace undersized concrete as required to suit the new design.
- 9.5 Where loading to existing trusses exceeds the capacity, renew. If trusses are to be retained, carefully examine all steel roof trusses apply two coats of zinc phosphate primer. Where corroded, weld new steels to trusses 'like for like' as required to suit the new design.
- 9.6 If the trusses are to be retained, renew timber purlins and sheeting to suit the new design.
- 9.7 Renew all rainwater goods and drain all the surface water away from the building to a new soakaway.

10.0 REFERENCES AND BIBLIOGRAPHY

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