



Steve Gilman
Design Ltd
Consulting Structural & Civil Engineers

Barn 2 Conversion

Four Winds

3 Tydd Low Road

Long Sutton

PE12 9AR

Visual Structural Inspection and Report

Project No. 7106

December 2020



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Registered in England. Registration Number: 5337463 V.A.T. Registration Number: 852 7676 88

The **Institution**
of **Structural**
Engineers



1.0 Introduction

- 1.01 Further to instructions received from Ms Gaby Jeffs, Steve Gilman Design Ltd undertook a visual structural inspection of Barn 2 at Four Winds, 3 Tydd Low Road, Long Sutton, PE12 9AR on the 17th November 2020.
- 1.02 The purpose of the inspection and report was to comment upon the present structural condition to supplement a pending planning application for conversion into living accommodation.
- 1.03 Our report is based only on the day's inspection and no monitoring, testing of materials or further investigations have been undertaken.
- 1.04 We have not commented specifically upon damp, condition of timber, and drains; specialist advice should be sought on these aspects if necessary.
- 1.05 There is vehicular access into the site from the east via a stone driveway off Tydd Low Road.

We estimate that Barn 2 was constructed between the 1960s and 1970s.

The appended drawings and photographs assist to describe the Barn and our observations.

2.0 Building Description

- 2.01 Barn 2 is two storey height, gable ended, and constructed with load bearing masonry external and internal walls supporting a pitched roof. A small mezzanine floor is situated towards the west gable and a single storey lean to section adjoined the eastern elevation. The roof is constructed with steel trusses supporting 5 rows of timber purlins to each slope which are clad with cement particle corrugated sheets.

External walls are believed to be cavity brickwork, width approximately 280mm with internal brick piers. Internal blockwork skin(s) have been constructed to north, east and western elevations.

The ground floor is formed with oversite concrete.

- 2.02 Barn 2 is surrounded by agricultural land to the north, grassed areas to the east and south, with a small area of concrete slab below a covered link structure, and a concrete yard slab to the west elevation.
- 2.03 Adjoining the south elevation is a steel canopy link structure connecting to the adjacent Barn.



- 2.04 All doors are timber and windows are steel framed and single glazed. Lintels above these openings are concrete. Rainwater goods are uPVC and cast iron; gutters are supported off irons.
- 2.05 The site topography is relatively level.
- 2.06 A fully detailed inspection was impeded by stored materials. No safe access was available to inspect the mezzanine floor at the time of our survey, so this was excluded from our inspection.

3.0 Ground Conditions

- 3.01 The British Geological survey 10-mile map of the area indicates that the underlying solid geology comprises Aluvium (clay, silt, or sand) superficial deposits overlying West Walton formation (Amphill and Kimmeridge clay).
- 3.02 Whilst published geological information and local knowledge are useful in assessing any site, the precise geotechnical/geological conditions cannot be determined without undertaking such laboratory testing, trial holes and boreholes as are necessary. The shallow trial holes undertaken confirmed that the formation of foundations was upon silty clay subsoils.

4.0 External Observations

North Elevation – Photograph 1

- 4.01 We noted cracking in the bed joint of the brickwork at eaves level to the central section of the elevation.
- 4.02 External brick piers projected out from the external wall.

East Elevation – Photograph 2

- 4.03 A single storey lean to structure adjoined part of the main two storey gable end.

South Elevation - Photographs 3 & 4

- 4.04 We noted that the cast iron downpipe was broken and damaged, resulting in the damp staining of the brickwork at low level. **Photograph 5.**
- 4.05 Exposed reinforcement was evident to the lintel above the window. **Photograph 6.**
- 4.06 Horizontal cracking along the bed joint of brickwork was noted above the door to the single storey lean to section. **Photograph 7.**
- 4.07 We noted vertical and stepped cracking between 1-2mm in width above the window and to the side of the external brick pier.



West Elevation – Photograph 8

- 4.08 Above the large door openings, areas of the brickwork faces have spalled, and mortar joints were eroded.

Trial Holes - Photographs 9 & 10

- 4.09 Refer to location plan and sketches in Appendix 2.

5.0 Internal Observations

- 5.01 The main two storey roof structure is formed with steel trusses and purlins built into the gable ends. **Photograph 11.**
- 5.02 A blockwork leaf is constructed to the northern and eastern walls.
- 5.03 Internal brick piers projected in from the southern external wall.
- 5.04 A concrete downstand beam supported the brickwork forming the internal party wall. **Photograph 12.**
- 5.05 The single storey lean to roof structure constructed to the east elevation is formed with steel RSJ purlins and underdrawn with boarding.

6.0 Conclusions & Recommendations

- 6.01 We recommend that all spalled and eroded brickwork be repaired and repointed as part of the proposed conversion works to maintain integrity and weatherproofing.
- 6.02 All vertical cracking noted should be repaired with a “Helibar” or similar crack stitching technique to strengthen.
- 6.03 The defect found within the concrete lintel should be repaired or replaced to prevent further deterioration.
- 6.04 In areas noted in this report, the horizontal cracking to the bed joints of the brickwork should be repointed. Holding down straps may require to be installed if the cause is found to be due to an issue with the effect of wind uplift. If steel tie corrosion is found to be the cause, then the ties are to be locally removed and replaced. Further on site investigations by a Contractor are advised.
- 6.05 The broken downpipe noted to the south elevation will need to be repaired.
- 6.06 We recommend that all timber, if retained, be surveyed by a specialist for decay and infestation and treated or replaced as advised in their report.



- 6.07 It can be concluded that from the visual inspection of Barn 2 at Four Winds, Long Sutton that the structure is generally in fair condition and would be suitable for conversion into living accommodation. Further design works and specifications will need developing with the Architect as part of the proposals to ensure compliance with the Building Regulations.

Andrew Foottit I.Eng, A.M.I.Struct.E.
For and on behalf of Steve Gilman Design Ltd

Date: 17th December 2020



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Appendices



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Appendix 1

Drawings

Robert Doughty Consultancy

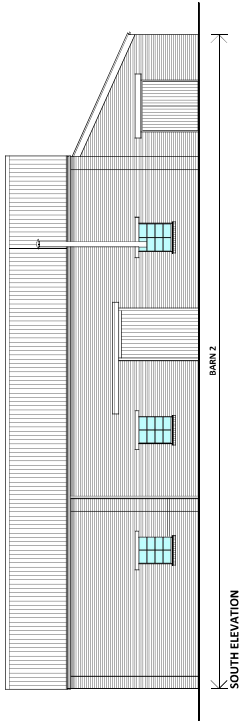
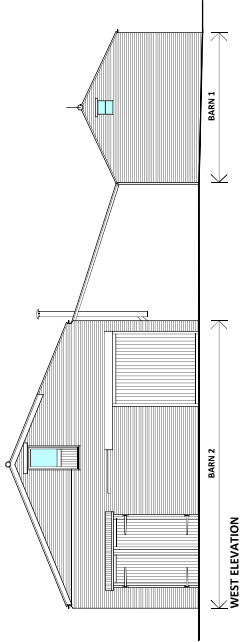
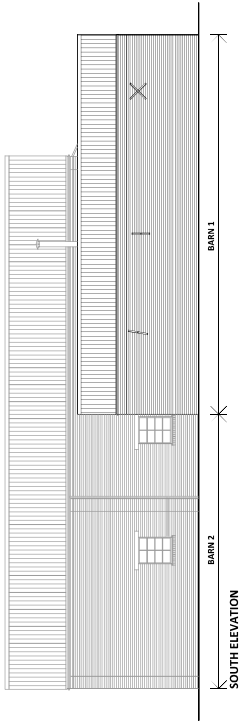
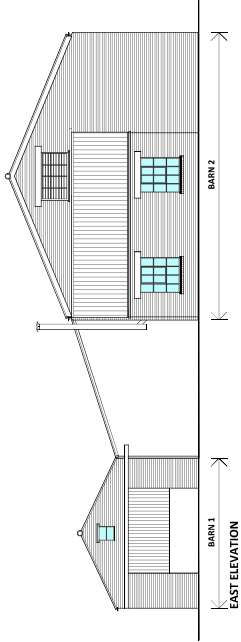
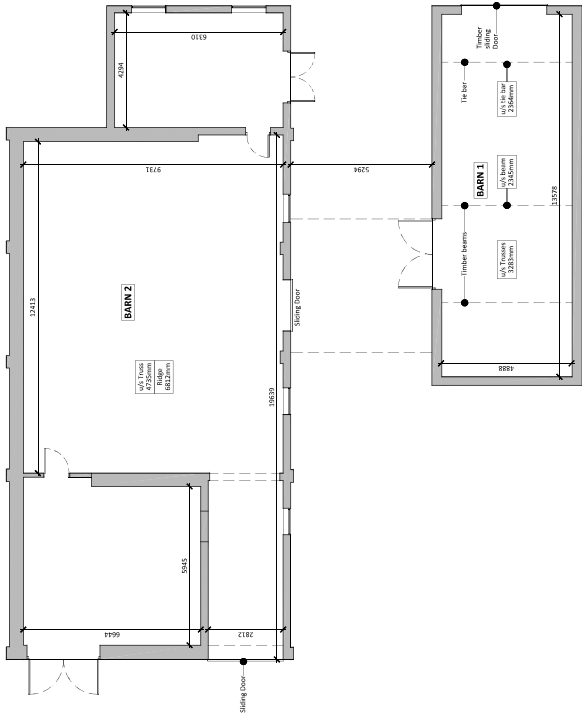
Drawing No. 1425-1_PL_GA04 – Existing Plans & Elevations Barns 1 & 2

Notes

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Dimensions
Dimensions are given in millimetres only. All dimensions should be
checked against the conditions and any
alterations to the design should be referred to the architect or
Robert Doughty Consultancy Limited.

CDM 2015
This document represents only
obtaining the relevant planning permission only. It
does not constitute a contract. It is the responsibility of the
client to ensure that the design and construction of the
development complies with the relevant Building Regulations
and Construction (Design & Management) Regulations 2015 has not been
undertaken.



FLOOR PLANS

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Client
Mr & Mrs J. Jeffs

Project
Four Winds
Tydd Long Road
Tydd St Giles, Cambridgeshire

Existing Plans & Elevations
Barns 1 & 2

Scale @ A1
1:100

Date
14/07/20

Drawn By
MS

Checked By
PSS

Job Number
1425-2

Purpose of Issue
Planning

Status
P.L.

Drawing No.
1425-2_PL_GA04

Rev
-



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Appendix 2

Trial Hole Location Plan and Logs

Drawing No. 7106/01 – Existing Barn 2 Trial Hole Location Plan

Drawing No. 7106/02 – Existing Barn 2 Trial Holes 1 & 2

Recorded by Steve Gilman Design Ltd on 17th November 2020



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Project

Four Winds, 3 Tydd Low Road, Long Sutton

Client

Ms G Jeffs

Title

Existing Barn 2 - Trial Hole Location Plan

Date

Dec 2020

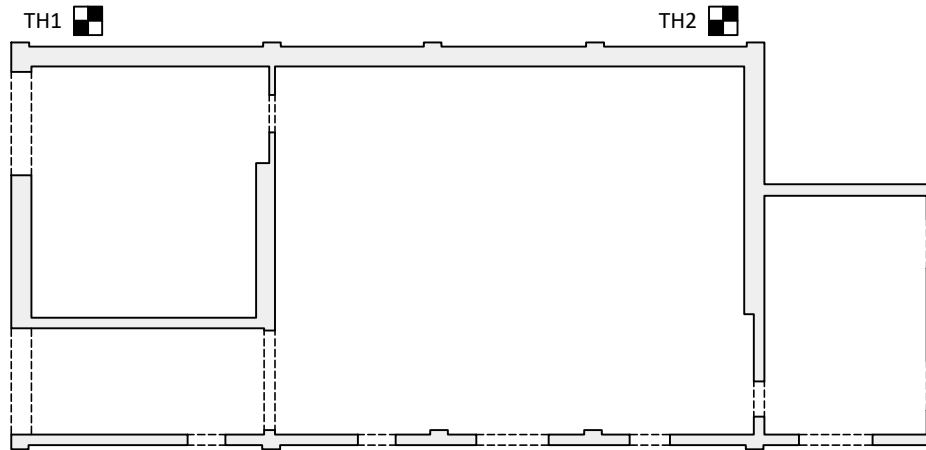
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Number

7106/01

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Existing Ground Floor Plan

Scale 1 : 200



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Project

Four Winds, 3 Tydd Low Road, Long Sutton

Client

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Title

Existing Barn 2 - Trial Holes 1 - 2

Date

Dec 2020

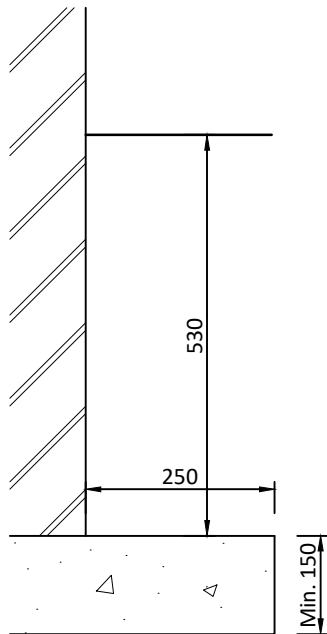
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7106/02

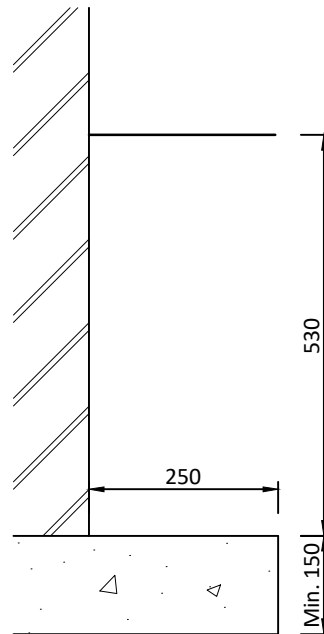
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Dark brown silty/clay
(medium firm)

TH1

Scale 1 : 10



Dark brown silty/clay
(medium firm)

TH2

Scale 1 : 10



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Appendix 3 **Photographs**



Photograph 1



Photograph 2



Photograph 3



Photograph 4



Photograph 5



Photograph 6



Photograph 7



Photograph 8



Photograph 9 – Trial Hole 5



Photograph 10 – Trial Hole 6



Photograph 11



Photograph 12