Brody Forbes
Consulting Civil and Structural Engineers

www.brodyforbes.co.uk
tracys@brodyforbes.co.uk

Bowman House
Beechwood Way
Langage Science Park
Plympton
Plymouth
PL7 5HH
Tel: 01752 896961

Our Ref: 10283-JW-SM-13092023

13th September 2023

Mr A. Thomas
AHT Design Ltd
The Old Chapel
Chapel Row
Widegates
Looe
Cornwall PL13 1QB

Dear Andrew

Re: Proposed conversion of annexe, Marae Barn, St Germans – Structural Inspection Report

Further to the inspection of the annexe at Marae Barn on behalf of Mr and Mrs Yung where Brody Forbes Limited were requested to inspect the annexe to assess its suitability for conversion, we write to confirm the findings of our inspection with recommendations.

The inspection was carried out on the 30th August 2023 during dry weather.

The annexe is detached, single storey but is split level (see AHT design survey drawing 3886/1) and the proposals for the conversion of the annexe are shown on AHT design drawing 3886/2.

The external walls of the annexe are typically constructed of 100mm 'single skin' concrete blockwork. Within the northern wall there are three number concrete blockwork piers 440mm square.

There is an internal partition wall formed in 100mm 'single skin' concrete blockwork between the upper and lower annexe with a concrete blockwork retaining wall at low level, which would appear to be formed in 215mm wide concrete block. The concrete foundation beneath this wall is exposed and measures approximately 300mm in depth and at the eastern end the formation beneath the wall can be seen and is a light brown clayey gravel (weathered slate) which appeared to be competent.

The lower annexe has an earth type floor and 'the upper' a concrete/ screeded floor finish.

The retaining wall between the existing external concrete slab along the west elevation and the lower annexe would appear to of 100mm 'single skin' concrete blockwork construction.

The eastern wall of the lower annexe is open.

The roof over the annexe is pitched with a corrugated 'asbestos cement' roof covering supported on a timber roof structure. Above the lower annexe the structure comprises three number timber purlins 75mm (w) x 125mm (Dp) spanning onto three number principal rafters which are 200mm (Dp) and of various widths between 50 and 70mm. The principal rafters span from the concrete blockwork piers within the north elevation wall onto the internal concrete blockwork partition . Over the upper annexe the structure comprises three number timber purlins 75mm (w) x 100mm (Dp) spanning from the east and west external walls onto two number timber principal rafters 80mm (w) x 150mm (Dp) spanning from the south elevation wall onto the internal concrete blockwork partition .

The following defects were noted:

a) The roof structures above both the upper and lower annexe are in poor condition with the following defects;
   - Both roofs are deflecting noticeably. The purlins at the eastern end of the upper annexe have been temporary propped.
   - The two central principal rafters above the lower annexe have previously been repaired with timbers spliced alongside the original rafters.
   - The timber wall plates on top of both the north and south wall are rotten.
   - The ends of the principal timber rafters where they bear into the south wall are rotten.
   - Roof sheets are missing alongside the west wall of the lower annexe.
   - The ends of the timber purlins where they bear into the east wall of the lower annexe are rotten.

b) There is a vertical crack in the west external wall of the lower annexe approximately 1.5m from the north west corner the crack measures approximately 2-3mm in width at the top and stops at ground level externally.

c) There is vertically cracking of the north blockwork wall one crack is located centrally in the middle wall panel between piers the crack measures 2-3mm in width at the top and tapers in width towards the ground. Another vertical crack is located in the wall panel between the piers at the eastern end of the wall and is similar in width to the crack in the middle panel.

d) Beneath the vertical crack in c) above at the eastern end there is an area of blockwork just above ground level which is eroded.
e) There is a vertical crack located approximately centrally in the internal blockwork partition between the upper and lower annexe. The crack measures approximately 2-3mm in width at the top and stops at the upper floor slab and cannot be seen in the retaining wall below the wall from within the lower annexe.
f) The concrete foundation beneath the retaining wall between the upper and lower annexe is exposed above the current floor level in the lower annexe. However, the ground beneath the foundation appears competent.
g) Where the west wall of the lower annexe abuts the upper annexe there is a vertical crack in the render.
h) Within the south elevation there appears to be two doors that have been infilled with blockwork.
i) At the right hand side of the door into the upper annexe there is a pier of blockwork that is cracked at high level where the principal timber rafter which is rotting bears into the wall.

The condition of the annexe in our opinion is such that it could be converted into a dwelling with repair works that would be expected of a building of this nature.

Based on the inspection it appears that the upper annexe was constructed before the lower annexe.

We would recommend that the following structural works are undertaken to support the proposed architectural scheme.

a) The roof structure above both the lower and upper annexe are in very poor condition and should be replaced.
b) The 100mm blockwork of the west wall above the lower annexe is cracked and the retaining wall beneath this wall with the lower annexe appears possibly to be of 100mm constructed. We would recommend that this wall is taken down and a new retaining wall / wall constructed. The reconstructed retaining wall will also support the new extension.
c) The 100mm blockwork between the piers in the north elevation is cracked and eroded at low level. We would recommend that this blockwork is taken down replaced with new 'tooth and bonding' to the existing piers. The foundation beneath the piers should be checked to ensure that they are adequately founded.
d) New concrete ground bearing slabs will be required. The details between the retaining wall foundation supporting the upper annexe and the lower annexe floor will require consideration to ensure the foundation is not undermined.

e) The vertical crack in the blockwork partition wall between the upper and lower annexe we would recommend is stitched using stainless steel Heli bar or equivalent.

f) We would recommend that internal timber frame drylining is provided sheathed with plywood or 'OSB' and tied to external 100mm blockwork to provide stability to the external wall.

g) Trial pits should be excavated to ensure that the walls of the upper annexe are adequately founded.

We would highlight the following:

i) The inspection and reporting is specific to the annexe structure and no general survey was undertaken. We have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the structure is free from defects.

ii) Our report was visual in nature and carried out from ground level and floor level within the annexe.

iii) This report and recommendations is issued to Mr and Mrs Yung and does not confer or purport to confer on any third party any benefits or right pursuant to the contracts (Rights of Third Parties Act 1999)

If you have any queries and would like to discuss, please do not hesitate to contact me.

[redacted]

Yours sincerely

Jon Warren.
For and on behalf of Brody Forbes Ltd