

Christie Burns

From: David Brier
Sent: 17 October 2023 08:12
To: Christie Burns
Subject: FW: 4/23/2196/0F1 & 4/23/2197/0L1 - ORCHARD BROW BARN, HAILE
Attachments: 1903-02b.pdf

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Morning Christie,

In response to the comments from Sammy Woodford listed below, and the Georgian Group please find our response in red;

- Insertion of some new openings into the barn; reopening of some closed openings; replacement of timber lintels with concrete; re-fenestration of all openings in the house and barn with mixture of timber and anthracite aluminium windows and timber doors;
 - **Compared with the previously approved scheme, the number of new openings is reduced and more sensitive in character.**
 - **The proposal to reglaze all windows with new, predominantly aluminium framed windows is reasonable as the previous house conversion of the end of the barn domesticated its appearance and altered its character. The new window design will provide more uniformity across the whole barn.**
 - **Being a barn, although timber may have been used in openings, there is less clear mandate for timber instead of metal in comparison with a house from the same period. I therefore do not object to the use of aluminium frames.**
 - **The existing red painted timber doors are characterful, and this is also a style and colour I have seen on other sandstone barns in the area of the same period, suggesting it is an aspect of local character.**
 - **I would be interested to know if thought has been given to retaining these as shutters, with the new glazing positioned behind.**
 - **It is proposed to retain the timber shutters to larger openings to the west elevation. These would be purely for decoration and be hinged in a secured open position. Elevations have been amended to show these.**
 - **Are any of the timber lintels still viable or is the proposal to replace them with concrete stipulated for structural reasons?**
 - **The use of concrete lintels would only be considered for new openings or should an existing timber lintel require replacement. The use of concrete is for longevity of the structure.**
- Connection of the house to the barn internally at ground and first floor levels. The former is accomplished by dividing the existing kitchen diner into an entrance hall with pantry beyond, both of which are accessed from the new kitchen positioned within the barn. The latter is accomplished by a corridor that divides the master bedroom into a smaller bedroom and an office;
 - **My understanding is that the layout of these rooms is part of the prior scheme when the dwelling was created, and that the lateral wall in question is of breezeblock construction. The changes to the layout appear reasonable given the design intention of extending the house.**
 - **Yes it is**

- At lower ground level, the barn is converted into an annexe consisting of kitchen diner, lounge and two en suite bedrooms, accessible only from outside;
 - **I have no objection to this.**
- Internal lining with insulated plasterboard and rebuilding of two internal lateral walls;
 - **The rebuilding of these lateral walls appears necessary for structural reasons.**
 - **Yes as per the Engineers report**
 - **The internal lining would not generally be considered good practice as it's combining non-breathable interior materials with a fairly porous red sandstone, which risks creating cold, wet pockets of air, cold bridging and in a worst-case scenario, mould and damage to materials such as joist ends, which are sitting within the wall.**
 - **This is a system used numerous times in Cumbria on listed and non listed barn conversions. The cavity wall created behind the blockwork allows the walls to breath whilst also not harming the original fabric of the building. Ventilation is provided into the cavity via existing clay vent ducts located around the building. Cold bridging is less likely with the new wall as the thickness and therefore surface area of wall attached to the outer leaf is reduced. These walls will be insulated to mitigate thermal bridging. The upper floors will also have a cavity as the insulated plasterboard will be set off the wall on a frame system to ensure a ventilation space and prevent damp bridging via plaster dabs**
 - **I would be grateful for comment on whether an alternative strategy, such as dubbing out the walls where necessary and lining with an insulated hot lime plaster (e.g. 50 or 75mm of hemp lime), has been considered.**
 - **The breathability of the wall and modern requirements for running buildings has all been considered in depth with the applicant. The additional cost of lime and hemp and the increase in running costs to heat the property are unfortunately in these times a major consideration which would add substantial cost to the conversion, with the alternate floor construction discussed below. Providing a cavity and insulating the walls with modern insulated board allows the existing walls to breath and provide more efficient living space.**
 - **Plasterboard will additionally result in a perfectly flat, mass-produced interior surface that will entail a loss of character.**
 - **This does provide a flat surface, but the character is proposed to be retained by the following: the internally exposed gable end wall behind the wood burner, (additional thermal insulation is compensated in the finished insulated walls, floors and ceiling; exposed timber roof frame; the full height ceiling in the lounge dining area. The applicant is keen to retain as much character as possible but also balancing this to provide an efficient building which can be enjoyed for many years to come.**
- Installation of insulated concrete floor to ground floor;
 - **The same comment applies here as above: This is a design that would more typically be used in conjunction with a cavity wall construction with a damp proof course. By contrast, the porous sandstone walls will be in the ground, and with impervious surfaces all around (e.g. the concrete floor slab and the tarmac road, or paving) there is a risk of inducing a high moisture content in the wall bases.**
 - **The existing floor is currently concrete. The barn does unfortunately adjoin the public highway with a bitumen surfacing finished tight to the barn wall on the west elevation. We can contact the highways to assess the viability of proviing a 6-8" strip of gravel to enable moisture to escape externally. This can be achieved easily on the East elevation. With the north gable wall being exposed both sides we do not envisage and issue. In the proposed internal block lining of the lower floor wall there will be a cavity area for moisture to filter up to ventilate out. To provide a natural insulating material for the floor the ground would need to be excavated well below the bottom stones of the barn walls which in experience can cause structural issues, and is it is not advised especially with the height of the barn.**
 - **If nothing else, this could be expected to greatly reduce the thermal performance of the wall bases, reducing internal comfort, or even leading to black mould behind furniture or damage to**

surfaces. This may also additionally lead to increased surface spalling on the lower part of the external wall face.

- The proposal for the barn is a tried and tested method of performance, and agreed is not altogether traditional but enables a balance of traditional and modern materials to ensure longevity and near modern thermal efficient performance to combat modern pressures of living.
- Replacement of section of barn upper ground floor with beam and block supported on blockwork inner walls at lower ground level;
 - This is certainly a fairly major intervention, although I understand that for reasons of fire safety and structural integrity, this is necessary.
 - I would view this as consisting of less-than-substantial harm to the significance of the barn.
 - Will this require the cavity behind to be ventilated, and if so how?
 - This will be ventilated as described above.
 - I appreciate that the Historic Environment Officer has requested a Level 2 survey of this part of the barn in the event of consent being granted.
 - This has been provided.
 - Notwithstanding this request, I would be grateful if photos of the existing suspended floor could be included to evidence the fabric that is to be removed.
 - Included in report.
- Removal of suspended first floor over barn indicated void;
 - Please see above request
- Installation of PV array in the eastern roof pitch;
 - I am sympathetic to this as the need to generate electricity passively is clearly high and likely to increase over time, thereby making it an argument in favour of the building's long-term viability. It also introduces more independence of the form of heating.
 - However, the building is orientated north-south, suggesting that the east elevation may have less than optimal capacity for solar generation.
 - The building is not optimally orientated but we have been advised that it will still generate suitable power to reduce the carbon footprint of the building.
 - I would be grateful if confirmation could be provided that a PV array in this location will be capable of generating a satisfactory amount of energy per year, that the indicated size/number of panels shown on the proposed elevation drawing reflects this amount, and a specification sheet for the panels, e.g. showing a flush-mounted installation.
 - We are awaiting confirmation on this. On initial discussions solar companies have suggested this. I believe this is due to the partial shading of trees to the west elevation.
 - I would also be grateful for comment on what modifications the roof structure would need to be able to support the trays that hold the PV panels, and what ancillary equipment such as inverters, control units, cabling and batters will be needed. Where will this be located?
 - The roof structure is of adequate strength to support the roof panels (the slate would not be in these areas reducing a large load initially). The initial inverters would be placed on the existing internal block wall with cables being dusted down to the existing lower ground Store area for the control units.
- Installation of a wood burner with flu projecting from roof near ridge on eastern pitch;
 - I have no objection to this
- Installation of services to barn;
 - Will new penetrations be required through the fabric to facilitate services such as water or fuel, sewerage etc.?
 - The heating system will be extended from the existing house through the existing block wall, and not externally. This will be for the lower floor unit aswell. The drainage as you have seen when on site is being taken out through existing access openings to prevent disturbance to the existing walls.

- **Please could more detail be provided on the proposed bathroom extractors? How will these appear externally?**
 - These will be ducted to the external wall with the Blauberg AH10 cover to the external wall. The product has clean lines and discreet and reduces back draft and noise especially from the roadside. Image of the product below.



Summary:

I am supportive of the principle of this conversion, but have some questions about detailing and some choices that I think need further defence.

In particular, the proposed insulation/lining method raises some concern for the capacity to cause poor performance or even damage to materials, as well as a perfectly flat internal surface at odds with the more natural shape of the stone.

I would like expansion on the above comments outlined in bold.

In response to the Georgian group email;

- Hopefully, most of the queries have been answered above. The level 2 survey discusses that the barn possesses few architectural embellishments and also noting that the listing is due to its proximity rather than personal merit
- Regarding the retention of the breather slots, it is proposed to retain these.

Regards

David Brier

Associate

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