

Conversion of Barn into a New Dwelling

Design & Access Statement



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Associated Documentation

This Design & Access Statement should be read in conjunction with the following drawings:

2311_P001_P1 - Location Plan
2311_P002_P1 - Existing Site Plan
2311_P003_P1 - Proposed Site Plan
2311_P004_P1 - Existing Floor Plan & Elevations
2311_P005_P1 - Proposed Floor Plans
2311_P006_P1 - Proposed Elevations
2311_P007_P1 - Illustrative Sketch Views

1.0 Introduction

The design and access statement has been produced to support an application for the conversion of a modern agricultural barn into a new dwelling.

The barn is located in a 3.7 acre paddock to the west of Evergreen House, Bowbridge Lane, Prestbury. The main house was constructed in the early 2000s, on land formerly owned by Anchor Cottage and has a large domestic curtilage, approximately a third of an acre. The main house is accessed via Bowbridge Lane, there is a large area of hardstanding to the front of the property that provides parking for a number of cars. A driveway to the south of the main house provides access to the barn, via a track, which is located to the west of the garden of Evergreen House. The barn is located approximately 90m from the main house at the bottom of a gently slope. Other dwellings, Copperfields, Bowgates, Anchor Cottage, Beechcroft, Meadow Garth, Saddlers Field & Park Corner are located a considerable distance (80/90m) from the barn.

The site is located in the Greenbelt.



Location Plan(Google Map 2023)



2.0 Context

Summary of Applicant's Brief & Objectives

The applicant has lived in the main house for xx years and would like to convert the barn into a sustainable home that will allow him to live in the area for the foreseeable future. The applicant has the following objectives:

- To create a 4 bedroomed family home, with open-plan living area suitable for modern & later years living
- To ensure the dwelling has minimal impact on the environment and the amenity of neighbouring properties
- To ensure the barn retains its agricultural qualities and has minimal impact on its setting

It is proposed to convert the barn into a four bedroomed dwelling, with an open-plan living area and bedroom on the ground floor and a new mezzanine level with three bedrooms above.



Existing Site Plan



1



2



3

2.0 Context

The Structural Condition of the Building

The condition of the building, the depth of foundations and suitability for conversion has been appraised by a qualified structural engineer, Neil Lancaster, from Mann Williams Consulting Engineers. He has made the following assessment:

At present the building structure appears to be performing satisfactorily and, for this reason, conversion to domestic use would be appropriate. Additional stiffness will be gained via the introduction of roof bracing and a mezzanine floor, and the compartmental nature of domestic living naturally enhances the lateral stability of the building as a whole.

Existing Structure

Purlins - Significantly under-sized by current standards, will deflect heavily under code defined snow loading. Will need to be replaced during conversion works, use 178x102x19 UB

Frame - Significantly under-sized by current standards, particularly the rafter sections. Frame likely to deflect heavily under both lateral wind loading and vertical snow loading. Deflections unacceptable once sensitive finishes introduced due to conversion to domestic use.

General - Where column bases are visible they appear to be lightly corroded, delamination not yet evident. Expose bases and protect steelwork.

100 brick 60 cavity 100 block cavity wall construction at low level with timber framing/cladding over. Walls appear to be free from movement and cracking suggesting foundations are performing satisfactorily. If re-using walls, head will need restraint

Typical - Longitudinal stability currently provided by lightweight steel bracing. Inadequate for conversion; detail elevations in such a way as to provide frame stiffness.

Portal frame rafters 203x133x25 UB

215mm Concrete hollow block walls at low level with timber framing/cladding over. Walls appear to be free from movement and cracking suggesting foundations are performing satisfactorily. If re-using walls, head will need restraint

89dia CHS steel roof bracing. Proposed for removal, replace with roof plane bracing (see below left)

Trial Pits

Columns appear to be founded on pad foundations approx 700-800mm square at 1m depth.

Strip foundations to walls appear to be founded at approx 650-700mm deep, possibly 600mm width (typically 200mm projection).

Founding conditions - firm clay.

Re-use of existing foundations possible, as long as proposed new first floor loading is well distributed between new ground floor walls and existing structure

Existing Ground Floor Plan

Options for Frame Strengthening

1. Additional columns under frame apex [1]. Unlikely to fit in with proposed layout
2. Undersized purlins to be replaced with steel beam sections [2]
3. Add gable end bracing (or appropriately designed infill walls) [3]
4. Add long elevation bracing (or appropriately designed infill walls) [4]
5. Add roof bracing [5]
6. Utilise new internal partitioning to add building stiffness [6]

Purlins 75mm wd x 175mm dp timber, approximate position shown

NOTES

1. The drawings copyright and may not be reproduced without the permission of Mann Williams.
2. All drawings are to be used in conjunction with the project conditions with all work carried out in accordance with the British Standards and codes of practice.
3. Any and all changes to the drawings and any other information must be provided to Mann Williams for approval before work proceeds.
4. All drawings to be checked on site and any discrepancies reported to the engineer before work commences.
5. Only approved or called out dimensions should be used and no doubling. All formats should be used.

This structural assessment is based on observations made from ground level internally and externally. Site visit made on 6 September 2023.

| REV | DESCRIPTION | BY | DATE |
|-----|-------------|----|---------|
| P1 | Preliminary | LR | 3.10.23 |

PROJECT: Evergreen Barn
LOCATION: Cheltenham
TYPE: Structural Assessment

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|-------|------|-------|------|
| LR | NL | A3 | 1:50 |

Preliminary

| PROJECT | DATE | REV |
|---------|------|-----|
| 12084 | 02 | P1 |

3.0 Design Proposals

Site Layout & Landscaping

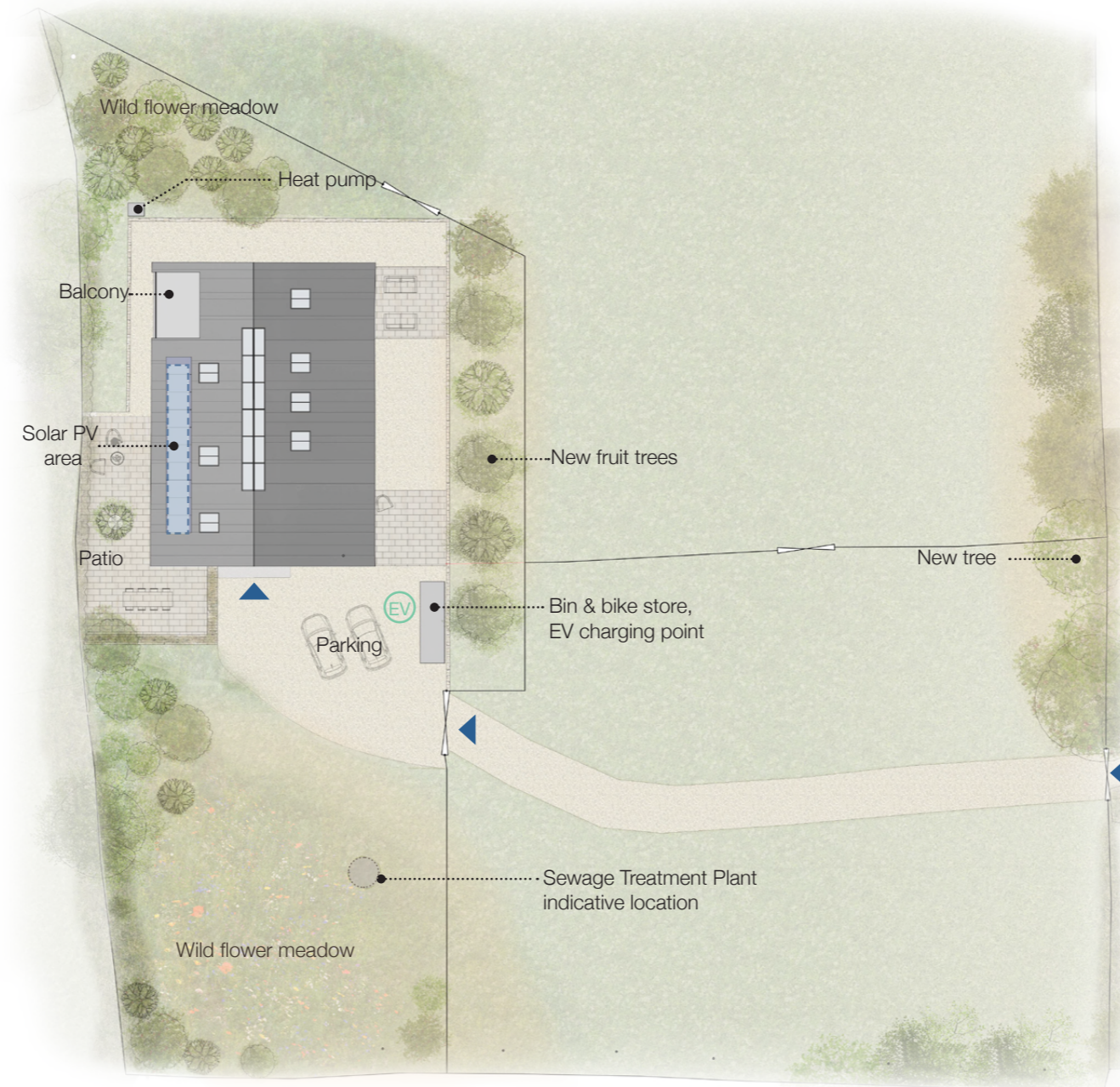
The layout of the dwelling has been designed to address the constraints, topography and natural features of the site. The main constraints are as follows:

- The slope of the site.
- To preserve the amenity of the neighbouring properties
- To preserve the existing hedges on the site

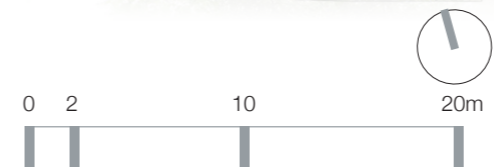
The existing barn is located centrally on the site, the garden wraps around all the elevations although the areas to the north and south are larger. It is proposed to retain the area to the south-east as a gravelled parking area, with bin and bike store.

The main outside amenity space has been located to the southwest and comprises of a private terrace area accessed from the main living area. The terrace is sheltered and private ensuring that this more domestic feature does not encroach on the main views of the barn to the east.

It is proposed to maintain the slope of the garden to the north and south and use naturalistic and native planting to encourage wildlife and soften the transition between the barn and the paddock beyond. It is proposed to plant a wildflower meadow on the surrounding garden area, this will create a buffer between the surrounding fields and the more formal areas of the garden. Proposed boundaries to the north, south and east will be post and rail fencing as per the existing. The boundary to the west, comprises of a fence and mixed hedgerow, this will be retained as existing. It is proposed to plant new fruit trees along this elevation to provide screening to the barn and soften its appearance from the houses higher up the slope.



Proposed Site Plan



Key

3.0 Design Proposals

Appearance

The proposals seek to convert the barn, preserving its agricultural character and appearance. The roof form & mass of the building will be unchanged as a result of the proposals. Existing openings, including the main barn doors, on the southwest elevation will be retained and repurposed with new glazing added. The large opening to the south-east corner and stable doors openings will be retained, a new opening will be added to the north-east to create access to the garden from the downstairs bedroom. On the west elevation, two of the bays will be opened up, with larger glazed sections, ensuring that the main living space has access to the patio and benefits from natural light. New openings are proposed to the north elevation, these are vertical in proportion and have a utilitarian feel that is appropriate in the context of the barn.

The existing material palette comprises of masonry (brick & block) with timber cladding above, this will be retained to maintain the agricultural character, however the bricks will be stained dark to give the building a more contemporary appearance. The block on the west elevation will be overclad with metal panel.

It is proposed to use skylights to provide light and ventilation to the first floor bedrooms and bathrooms and a linear ridge skylight to provide light to the landing area. A discreet balcony is proposed on the north-west corner of the building to provide views and external space for the master bedroom. The roofing is proposed to be metal standing seam to reflect the barn typology and semi-rural location.

Existing



Existing southwest elevation material palette



Existing southeast opening and stable doors



Existing blockwork

Proposed



Southeast View



Southwest View

4.0 Other Considerations

Landscaping & Trees

The landscaping around the building has been designed in order to provide a range of spaces for a variety of activities; for parking, dining and sitting.

Biodiversity Net Gain

Although not a requirement at this stage, the applicant is keen to ensure the development positively impacts the surrounding wildlife, and complies with emerging policies relating to Biodiversity Net Gain. Therefore, the following enhancements to the site are going to be incorporated:

- The sloped areas of the site will be planted our wildflower meadow
- Native planting will be used around the barn
- Bat & Bird Boxes will be located on the gables
- Hedgehog and insect houses will be positioned within the outside space
- New Fruit trees are proposed along the east elevation

Amenity

The conversion of the barn has been carefully considered to minimise the impact on the amenity of the neighbouring houses and Evergreen House. The houses along Bowbridge Lane, are located a considerable distance from the barn. Rooflights are proposed along the east elevation to limit the possibility of overlooking to the garden and rear elevations of the neighbouring houses.

Access & Parking & Bins

There is parking provision for 3 cars on site, and storage for two bicycles and bins will be provided in a separate store located off the driveway.

Sustainability & Energy Statement

The applicant has a strong desire to create a dwelling that has a minimum impact on the site in terms of both its carbon footprint and energy consumption. Where possible sustainable and local materials, such as the local stone walls, will be used to minimise the impact on the environment.

The proposed landscaping will comprise of drought-tolerant and native species which will encourage wildlife whilst minimising water consumption.

In addition, the new dwelling will be constructed with a very high level of air tightness, which will exceed current building regulations, and will utilise proven technologies such as the following:

- Air source heat pump in conjunction with underfloor heating
- Solar panels
- Heat recovery system
- Natural ventilation and shading
- Electric Vehicle Charging Point

Neighbour Consultation

The applicant has had direct consultations with their immediate neighbours and the Parish Council and they have indicated they are supportive of the design.

5.0 Conclusion

In conclusion, there are a number of benefits of the scheme:

- The site is inherently sustainable and makes good use of a previously developed piece of land
- The dwelling ensures an existing resident can live within their local community.
- The dwelling will be constructed from existing or sustainable materials and with maximum energy efficiency in mind.
- An agricultural-style dwelling is an appropriate design response for a fringe site within the village and will not impact the setting of the conservation area or any key views from public rights of way.

In conclusion, the scheme is inline with the principle of sustainable development as per the National Planning Policy Framework.



Front View