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Structural appraisal of Hill Farm Barn, New Smithy, Chinley, SK23 6AP

Constructed in the early part of the nineteenth century for the storage of hay and other animal food, the barn is situated on the south side of School Lane, New Smithy, Chinley and is of coursed natural stone construction and measures12.120 x 9.230 m. on plan overall externally. The natural fall of the land to the south side provides an eaves height of 5.700 m. on the north elevation and 6.950 m. on the south elevation. The external walls are 480 mm thick with two internal 450 mm thick stone cross walls, running the full height from ground floor to u/s roof.

Roof

Stone slates and stone ridge tiles pegged to 100 x 62 soft wood roof jack rafters at 430 mm centres. The roof is unfelted. The 100 x 62 soft wood jack rafters are supported by 305 x 125 soft wood purlins spanning between the two internal masonry cross walls at 4.115 m. and 4.050 m. clear openings. There is no evidence of deflection in the main roof purlins which appear to be well within design limits, and no obvious evidence of wet or dry rot. The roof has no concealed voids and is well ventilated which has prevented the occurrence of wet or dry rot. It was not possible to make a comprehensive survey of the structural timbers. Closer inspection will be made on commencement of work and/or timbers will treated with preservative to specialist's recommendations.

Mezzanine Floor

There is a mezzanine floor which consists of 18 mm pine tongue and groove flooring with obvious evidence of worm/beetle attack and which is now of very variable quality and cannot be re-used. This is supported by 175 x 62 soft wood joists at 430 mm centres, maximum clear span of 2.050 m. and spanning onto 225 x 100 soft wood purlins, spanning 2.700 m. There is some evidence of insect attack in these purlins which cannot be re=used during the renovation work.

Ground Floor

The floor is a mixture of stone slabs, concrete and cobbles. This area has been previously used for sheltering animals and is sub-divided with either 100 dwarf blockwork walls or metal/timber partitions, all of which will be removed during the proposed alteration works.

External Walls.

Doors and window openings

At first floor these are pierced by a series of 225 x 450 ventilation slots at regular intervals. There are no windows at first floor level on the north and south elevations, merely two timber shuttered openings on the east and west gables.

At all window and door openings, the walls are constructed with finely finished stone quoins with convex profile and fine jointing. All windows on the north, east and west elevations are finished with 325 deep exposed smooth stone lintels and 150 deep stone cills. On the north side, the barn door opening reveal is finished with finely tooled stone quoins with a segmented arch over with decorative keystone.

The barn door is in painted soft wood in poor, shabby condition. Likewise the existing timber windows are in poor condition and not worthy of retention. On the south facing elevation there are three window openings on the ground floor and none at first floor level, merely a series of 215 x 450 ventilation niches with stone corbels at eaves level. As far as possible these features will be retained in the final scheme.

General Conclusions

The barn is dry and of robust construction with no obvious signs of structural movement/defect or subsidence at the corners of the building. The roof will require removal to allow for the insertion of a modern breathable felt membrane and high-performance rigid foam insulation, and to carry out a thorough investigation of the structural timber, which this survey did not permit. The timber will be treated by a timber specialist.

I believe that the general construction and headroom afforded at first floor level lends itself to a thoroughly acceptable conversion to a four-bedroom dwelling for the applicant and his family without major re-construction and rebuilding.

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