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STRUCTURAL APPRAISAL REPORT

Proposed Development of New Platt Farm House, Carriage Drive, Littleborough

DATE OF INSPECTION: 16th August 2022

WEATHER: Clear skies humid atmosphere.

SURVEYOR: Frank James Smith.

TYPE OF SURVEY: The structural appraisal of existing stone built barn and stables. No comment on building services, drainage, outbuildings, boundary fences and adjoining properties, nor does it include the disruptive opening up of fixings or finishes.

TYPE OF STRUCTURE: The building is load bearing solid stone walls of varying thickness and stone types.

AND MATERIALS OF Timber pitched roof structure and stone walls. The building is rectangular in plan and offers

CONSTRUCTION window and door openings with stone lintels and surrounds.

USE OF STRUCTURE: Two storey barn currently used as storage. Single storey stable structure disused.

AGE AND ALTERATIONS: The precise age of the structure is not known. Connected barn and stable structures seem to be original.

INSPECTION – Barn

1. Externally the existing barn is faced sing a rustic coursed stone throughout of varying lengths. Window and door surrounds consist of natural stone pieces with mortared joists. The internal face of external walls is painted natural stone with no clear signs of damp egress suggesting a possible cavity wall construction.
2. No internal walls present at time of inspection.
3. Ground floor is exposed ground with minor stone infilling to create a surface that is somewhat consistent in level.
4. Roof structure is consists of two king post trusses positioned to the centre of the barn supporting 2 purlin beams per roof plane (total of 4 purlins). Purlins provide support to timber common rafters. Timbers appear to be in good condition.
5. The existing barn is directly linked to the main farm house and therefor continues the slate roof finish of the main farm house which has been recovered in the past 12 months
6. 2 internal cracks are evidenced to internal face of the barn likely caused by expansion, the effects of freeze thaw cycles and changes in ambient temperature and moisture variations given the barn is exposed to external weather changes.
7. A large barn door is located facing South with stone surrounds and heads matching the existing dwelling.

INSPECTION – Stables

1. Externally the existing barn is faced sing a rustic coursed stone throughout of varying lengths. Window and door surrounds consist of natural stone pieces with mortared joists. Eastern section of the front elevation has been previously rendered, potentially indicating an extended section of the stables. The internal face of external walls is painted natural stone with no clear signs of damp egress suggesting a possible cavity wall construction.
2. Ground floor construction is uneven concrete.
3. Roofing structure is timber rafters, no purlins due to the reduced depth of rafter spans.
4. External roof tiles appear to be clay roof tiles with dry ridge and verge tiles suggesting the roof has been altered previously.

INSPECTION – General Notes

1. Generally all the walls throughout are vertical to the eaves, variations in the wall are caused by uneven stone sizes used in the original construction of the walls and will not require any re-build to make them plumb. There are no clear signs of settlement or movement cracks, any such settlement has occurred evenly and the building has coped with the settlement. Cracks identified within the barn are likely due to the environment which the barn is exposed to.
2. No foundations were exposed at the time of inspection and therefor will need to be inspected prior to any work commencing on site.
3. The external perimeter walls do not show any clear signs of moisture penetration however the uncertainty of a cavity within the existing walls should be investigated; additional internal damp proofing may be required.
4. The lower parts of the existing perimeter walls do not appear to have a damp proof course and as part of the conversion it should be provided with a new damp proof course and possible cavity tray to expel any cavity moisture to the outside.

PROPOSAL

1. It is proposed that the entirety of the structures found on the site are to be split to form new dwellings following internal refurbishment as well as first floor extension of the existing stable structure.
2. All existing foundation are to be exposed and strengthened if required.
3. Internal refurbishment of the barn would see the grubbing up of the existing floor and the introduction of a new concrete floor following the inspection of the existing foundation. New ground floor timber walls and new ground floor masonry walls with independent foundation. The introduction of a first floor with associated timber walls. Retaining and making good the existing roof structure.
4. Extension of the existing stable structure includes the removal of the single storey roof finish and structure to allow for the build-up of the existing external wall stonework using a cavity wall construction to form a new first floor that would connect to the existing barn gable. In addition the stable building is to be provided with a two storey side extension to the east, however this structure does not rely on existing structural elements to be built and will simply tie in to the existing stables walls and the new first floor extension walls. Externally the extensions would be constructed to provide a mixture of rendered and stone facades. Introduction of a new part wall built off new foundation to form separation between dwellings. New roof structure to be introduced following the external wall build up would consist of new rafters and steel purlins. New roof finish already in place following works to the main farm house.

5. Internal refurbishment of the stables include the retention of the existing masonry walls, the inclusion of additional internal masonry walls to provide added support to a new timber floor makeup connected to the external walls. New concrete ground floor structure to be provided following the grubbing up of the existing floor and the inspection of the existing foundations. First floor walls are to be both masonry, built from ground floor, and timber studs with the masonry walls providing required support to any new steel purlin within the roof structure.
6. New windows and door openings formed through existing masonry walls are to be supported using heavy duty steel lintels where catenics are feasible or RC lintel arrangements in either case finished externally with stone lintel to match the existing historic openings.

CONCLUSION

1. Overall the external face of the structures is in good condition and is visually appealing producing no need for external refurbishment to the existing elevations.
2. The masonry walls do not exhibit any bulges and the eaves to most elevations are not out of plumb. Where no visible deformations of the like are found the walls appear to be satisfactory. Given the method of conversion to the retained structures, the walls will be strengthened via the introduction of new floors and new masonry walls, specifically the barn would benefit greatly through the introduction of a new first floor which would tie the building together at an intermediate point of the masonry walls. The existing barn roof structure has been inspected prior to the reroofing works enabling the retention of the existing king post roof.
3. The build-up of the existing stable building constitutes the majority of structural work required for the proposal, the existing stable walls are in good condition and provide a good base for the proposed first floor extension with only minor underpinning / foundation strengthening possibly required. Existing buttressing from the existing internal stable walls is to be retained.
4. Existing openings within the perimeter walls do not show any signs of sagging or need for remedial work, therefore existing openings are to be retained where possible given the proposed floor layout.
5. In conclusion these buildings are capable of the proposed method of conversion and extension without the need for major demolition / repair.