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**PROPOSED
BARN CONVERSION
AT
GISBURN COTES FARM
SAWLEY**

SUPPORTING STRUCTURAL SURVEY

NOVEMBER 2019

GUIDANCE NOTES

This statement is supported by :-

a) Existing elevations

b) Photograph survey

DESCRIPTION

The building is rectangular in shape under a dual pitch roof supported on timber trusses at $\frac{1}{4}$ points forming four principle compartments designated 1,2,3, & 4 as shown on the existing detail.

Section 1 has a extended width with lower gutter heights as shown on the long elevation.

Section 2 has a likewise roof line to the south west covering principle access in the form of a wagon door with similar opening to the north east.

The north east roof line continuous to a lower gutter level over a small enclosed extension.

There is a "Lean To " extension to the south east gable under a mono pitch roof.

There are stepped earth – floor levels . Section 4 approximately 250 mm higher than the constant level.

Floor level of the lean – to building is 500 mm above the principle levels of sections 1,2, & 3

Ground levels vary 1.30 m between both opposite gables.

Walls are stone built on average 500 mm thick constructed out of 2 leaves with dry rubble infill and random "Throughs" which is common construction for this location of England

The roof is supported on 3 trusses @ $\frac{1}{4}$ points and two gable with 2 purlins each side of the ridge all of the same common size under a corrugated cement composite sheet roof.

There is an additional "Lean-To" extension along the north-east long elevation constructed out of corrugated steel sheets to both the walls and roof.

CONDITIONS

SOUTH – WEST

The principle wagon door entrance head is supported by a solid slightly arched (oak) timber lintel with drip stone flags above . The lintel is severely open grained and weather beaten, with suspect decay to the right hand side at its end support location . See P 12

The return wall supporting the lintel has pieces of stone missing , in particular local to the support lintel

The single door head was originally supported by a whole piece of (oak) timber in the form of a lintel (very much the same principle of the main wagon door) The inner section remains with the principle front section missing leaving a large hole with loose stonework above.

It would appear the top 800 – 900 mm of the wall appears to have been rebuilt at some time in the past or repointed by the difference in appearance to the lower section.

Both principle flank walls are straight and plumb both internally and externally and in sound condition

NORTH- WEST

This gable has principle features in the form of a “Dovecot” with 10 No pocket holes with slate landing platforms within the higher section of the apex in its original condition.

There are 5 No “Breather Holes” 2 No high, 3 No lower regular locations.

There is also a lower located opening approximately 800 x 800 created in recent times in the form of a window with neither a support lintel , cill or dressed jambs,

The single door opening to the right hand side with similar (oak) support beam and stone flag drips a previously described.

The stonework above the door opening is loose with vertical fracture gaps (more visible internally) purlins towards the corner and slightly out of plumb

To the left hand side of the door there is a section of stone loose and lacking bond and strength and mortar

SOUTH – EAST

The principle south east elevation is covered by the “Lean-to” extension and appears to have a history of alterations – changes

P19 shows an internal view of a higher infill opening in the form of a forking hole with timber arched head

The same opening P9 externally has been formed into a projected flue, as we understand from local knowledge in use from floor level within the "Lean – to "

There are also several "Breather" holes, very much similar to the opposite gable

Looking from the inside there is a ground floor level formed masonry opening approximately 800 x 800 with simple slim stone lintel. The opening is blanked off externally within the enclosed "Lean – to" side

NORTH – EAST

This wall in principle is covered by a steel clad enclosure with an open end from the south-east used as a live – stock field shelter.

To the left of the shelter P7 there are 2 No formed masonry openings. The higher opening i.e. 1.20 x 0.90 m with a timber insert, most probably a lining to support a timber door enclosure.

The lower level opening is 1000 x 600 with similar timber frame lining. There are also 2 No breather holes between both openings.

The principle higher corner quoins (local to the openings) have been removed to allow bonding – tying of the adjacent "Lean – to" end wall.

To the right-hand side pf the field shelter is a formed door opening P 5 with timber lintel (most probably not original) The opening at sometime has been infilled with stone forming a window opening

The opening appears to have formed a structural weak spot with slight settlement and out of plumb corner . This is more obvious from the inside , see P 14 you will note a sloping internal timber lintel above the door and vertical settlement gaps above the opening.

Within the steel shelter enclosure is the opposite wagon door with (oak) timber lintel. To the left hand side internal P21 there is some settlement and structural weakness above the seating arrangement of the timber lintel

The wagon door has been infilled with a stonewall and higher central opening

Principle section of the main wall is in good condition.

LEAN – TO – SOUTH – EAST EXTENSION

This extension is a later addition with alterations to all three sides.

The south – west side elevation has a single door opening with a replacement concrete lintel supporting the head.

The north – east side elevation has a masonry opening P7 approximately 0.60 x 1.0 m with (oak) timber lintel and stone drip tray , with flush rendered reveals.

Both the above described elevations are 'But' jointed to the principle gable wall.

The south-east wall has a masonry opening P9 to the right hand side approximately 0.60 x 0.80 m with a rough stone lintel . There has been some stone patch repairs to the top righthand side of this opening

Central to this elevation P9 there are some existing vertical joints with stone infill panels approximately 1200 mm wide. The infill is rough patched to its head.

The walls are generally in good condition.

NORTH – EAST OUTRIGGER

Has a mono patch roof P5 with stone walls in the form of a small enclosure (porch) with entrance door to the north – west elevation

The door has an (oak) timber beam with stone drip tray and a timber door insert.

There are the remains of a sloping mortar flashing joint indicating a previous demolished extension to this corner of the building.

Overall the outrigger is in good condition.

ROOF CONSTRUCTION (main)

As previously mentioned in the description section the roof insitu compromises of trusses at quarter points with 2 rows of purlins down each side with a corrugated sheet cover.

In all probability the original cover would have been grey slate (stone flags) on rafters. The existing trusses and purlins appear in reasonable condition subject to a local survey.

ROOF CONSTRUCTION (lean to)

The construction is of simple form to suit the fixing of sheet material out of softwood section

Inclusive of a central sloping binder beam to allow 3 No rows of purlins supported on the gable walls and central blinder

WALL FOUNDATION

Wall foundations are typical for thick stone construction in the form of heavy stone slabs on average 300 mm below the earth floor level built on boulder clay

GROUND LEVELS

Ground levels appear to have changed over the years with a sloping strata varying 1.30 m from each gable

SUMMARY AGREEMENT

The principle walls are in good condition subject to some pocket demolish and rebuilt amounting to no more than 5% of the overall wall areas.

PROPOSED STRUCTURAL IMPROVEMENTS

PRINCIPLE WALL

Sections of walls to be rebuilt are shown etched on the existing elevations
Drawing No 7004

Including the following :-

- a) Approximately 4.0 s.m. above the door to the north-west elevation
- b) Approximately 4.0 s.m. above the door to the N.E. elevation
- c) Higher section of pier wall supporting the right hand side of the wagon door
- d) Right hand section of wall supporting the north-east wagon door

The rebuild shall include mass concrete block tied-stitched into the existing and outer lined with stone to match existing in coursing and size.

In general principle the walls shall remain the dead and live roof support

A perimeter concrete block lining wall shall be constructed and tied into the existing stone wall to suit site conditions . Steel binder beams spanning the building width to provide lateral restraint and support dead and live floor loading independently to the existing construction.

Concrete strip foundations shall support the block work at a depth not more than the bottom level of existing stone slabs

MASONRY OPENING

Existing timber lintels and drip stones shall be retained subject to a detailed site inspection or replaced with stout reconditioned sandstone.

Existing masonry openings in general shall be adjusted to allow a regular size and the incorporation of reconditioned sandstone heads and cills, with concrete block inner reveals to allow vertical damp courses and flexible cavity trays.

STONework

All stone walls in general shall have raked out joints and repointed with a traditional sand-lime mortar joint.

ROOF

The existing trusses and purlins shall be inspected for beetle infestation and treated accordingly and prevention of future infestation by a specialist nominated contractor.

The truss bearing ends shall in particular be inspected for decay – rot and treated accordingly . It is sometimes common to fit a metal shoe.

The existing roof cover shall be replaced with grey slate (stone flags) on felt and battens and new rafters to suit site conditions.

A designed insulation system shall be fitted into the new roof construction.

RAINWATER GOODS

A heritage cast alluminium gutter system will be fitted with “Drive in rise and fall Brackets”

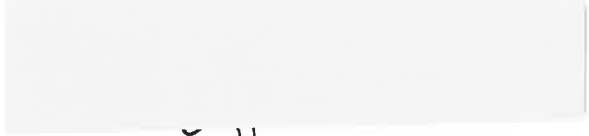
Cast alluminium circular down spouts shall be fitted with rainwater heads and ‘Ear’ fittings.

GROUND FLOOR CONSTRUCTION

Shall be ‘Solid’ at one level within the main building out of 125 mm concrete on damp membrane on 100 mm Kingspan insulation on damp membrane on 200 mm selected compacted hardcore stone with sand blinding

FIRST FLOOR

Shall be ‘suspended ’ out of steel binder beams with supporting structural calculations and timber joist floor chambers and timber decking.



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