



2021/24 BELL
EXISTING BARN AND STABLES
STRUCTURAL DEFECTS AUDIT

PROPOSED CONVERSION OF REDUNDANT
AGRICULTURAL FARM OUTBUILDINGS TO FORM ONE
DWELLING UNIT FOR OWNER TO OCCUPY AND ONE
DWELLING UNIT FOR RENTAL ACCOMMODATION.

FORWOOD FARM, TRESWELL

RETFORD, NOTTS.

DN22 0EE

Applicant — Mr Mathew Bell



Photo 01 –

Due to a lack of footings at the base of the wall and subsidence on the clay soil, cracks have appeared running from the footings to the eaves.



Photo 02 –

Due to subsidence at the north east corner of the two-storey barn a restraining bar has been placed just below first floor level through the external wall to stop the larger opening on the southeast elevation widening, putting the two channel beams, which span the opening to support the gable end wall above, at risk of failure.

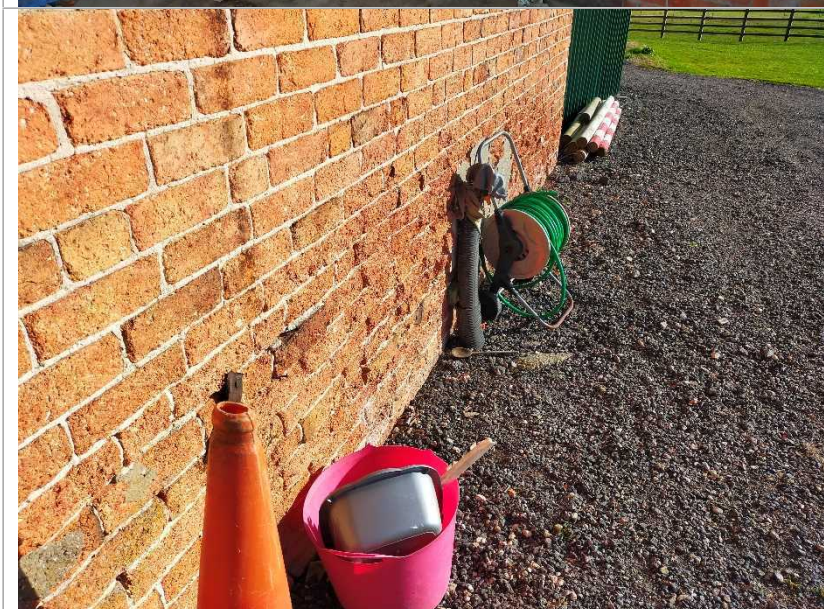


Photo 03 –

Rising damp, frost damage and weathering has perished the brickwork on the southwest gable end.

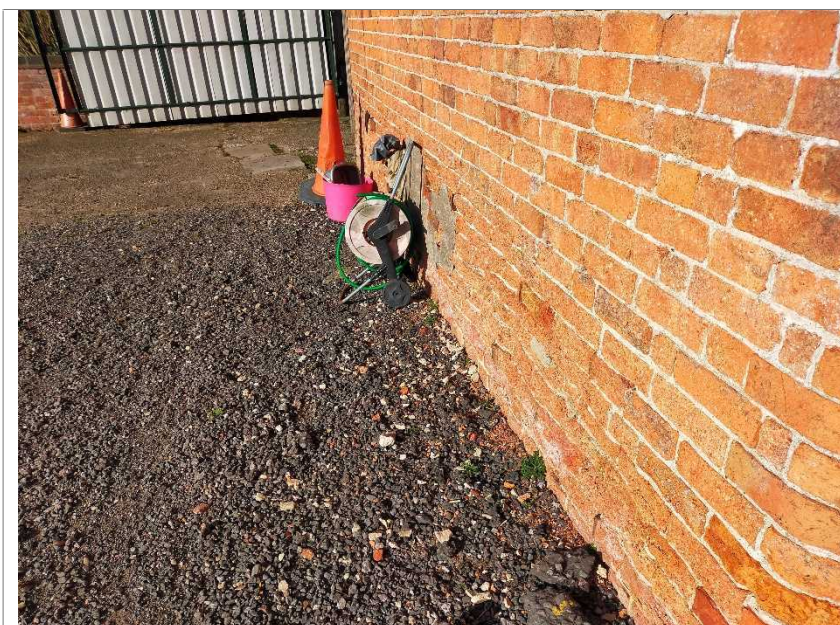


Photo 04 –

Rising damp, frost damage and weathering has perished the brickwork on the southwest gable end.



Photo 05 –

Due to a lack of footings at the base of the wall and subsidence on the clay soil, cracks have appeared running from the footings to the eaves on the southeast side wall of the single storey barn cart shed.

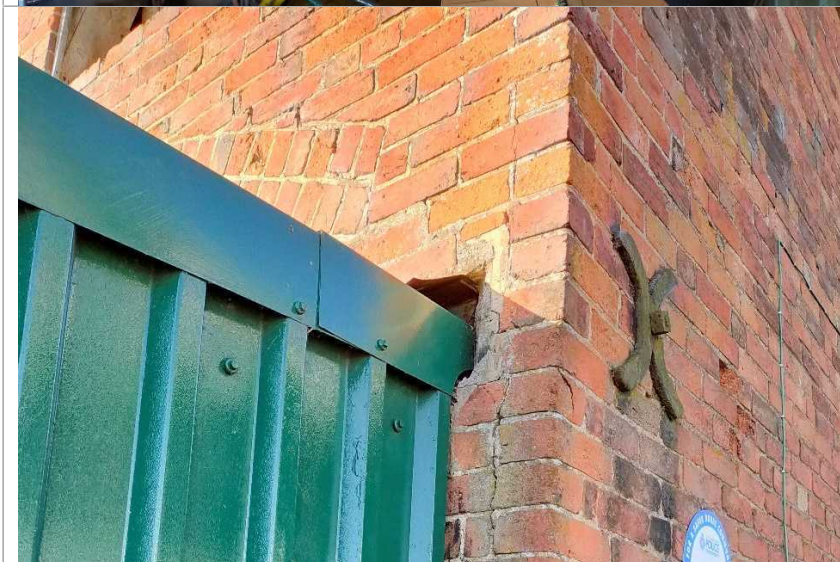


Photo 06 –

Due to subsidence at the north east corner of the two-storey barn, a restraining bar has been placed just below first floor level through the external wall to stop the larger opening on the southeast elevation widening, putting the two channel beams, which span the opening to support the gable end wall above, at risk of failure. The opposite end can be seen in Photo 02.



Photo 07 –

Rising damp, frost damage and weathering has perished the brickwork on the southwest gable end wall.



Photo 08 –

Rising damp, frost damage and weathering has perished the brickwork on the southwest gable end wall.



Photo 09 –

Rising damp, frost damage and weathering has perished the brickwork on the southwest gable end wall.



Photo 10 –

Rising damp, frost damage and weathering has perished the brickwork on the southwest gable end wall.



Photo 11 –

As can be seen, the load bearing wall to the single storey barn only continue 225mm below ground level finish before the footings start and the footing do not continue further any more than three brick courses deep. Due to a lack of footings at the base of the wall and subsidence on the clay soil, cracks have appeared running from the footings to the eaves on the southeast side wall of the single storey barn cart shed.



Photo 16 –

As can be seen, the load bearing wall to the single storey barn only continue 225mm below ground level finish before the footings start and the footing do not continue further any more than three brick courses deep. Due to a lack of footings at the base of the wall and subsidence on the clay soil, cracks have appeared running from the footings to the eaves on the southeast side wall of the single storey barn cart shed.



Photo 18 –

L



Photo 20 –

Cracks



Photo 21 –

Untreated timber roof joists have been placed on the external masonry wall of the single storey barn and steel circular posts at the front of the cart sheds. These timber are in need of replacement as they have rotted away at both the front and back of the cart sheds.

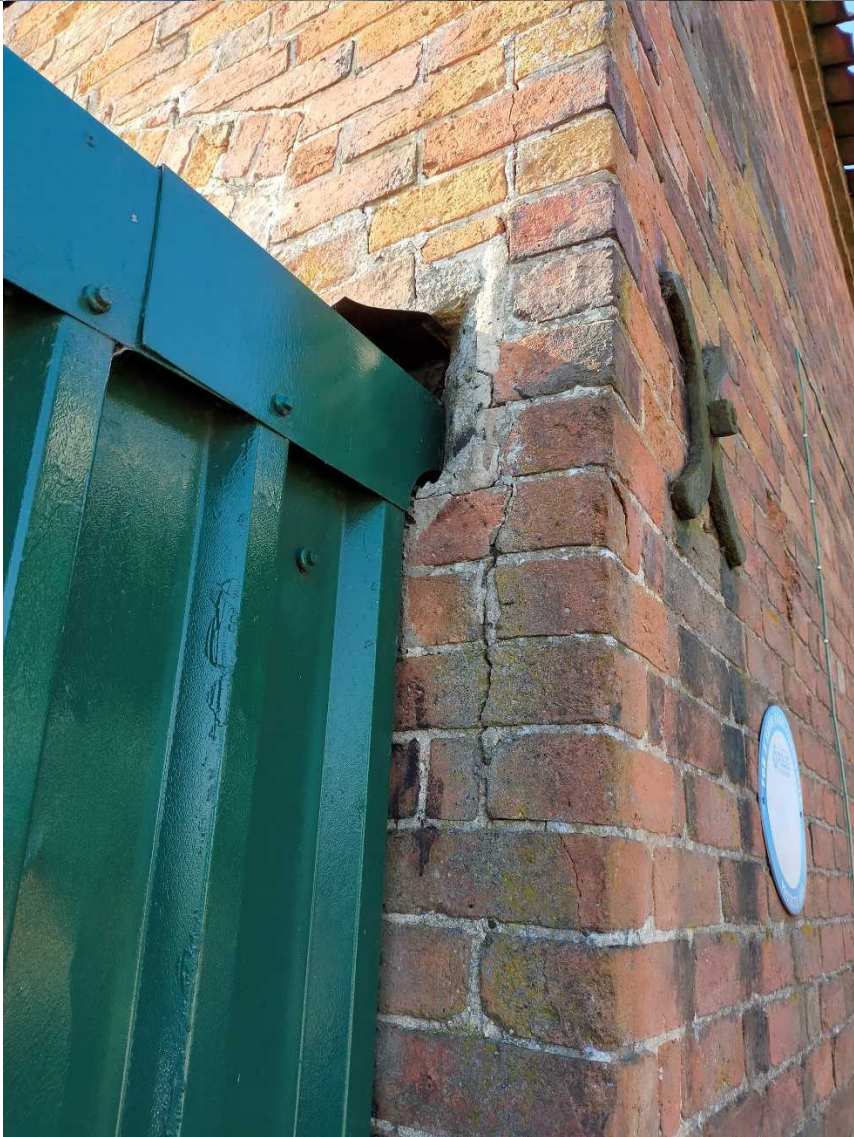


Photo 22 –

Cracks can be seen where the two channel beams, which span the ground floor barn grain store opening, sit on the external wall brickwork by less than 75mm. All of the bricks and mortar joints below the beams have cracked in half. Therefore, the wall is at risk of failure and is in need of being rebuilt.

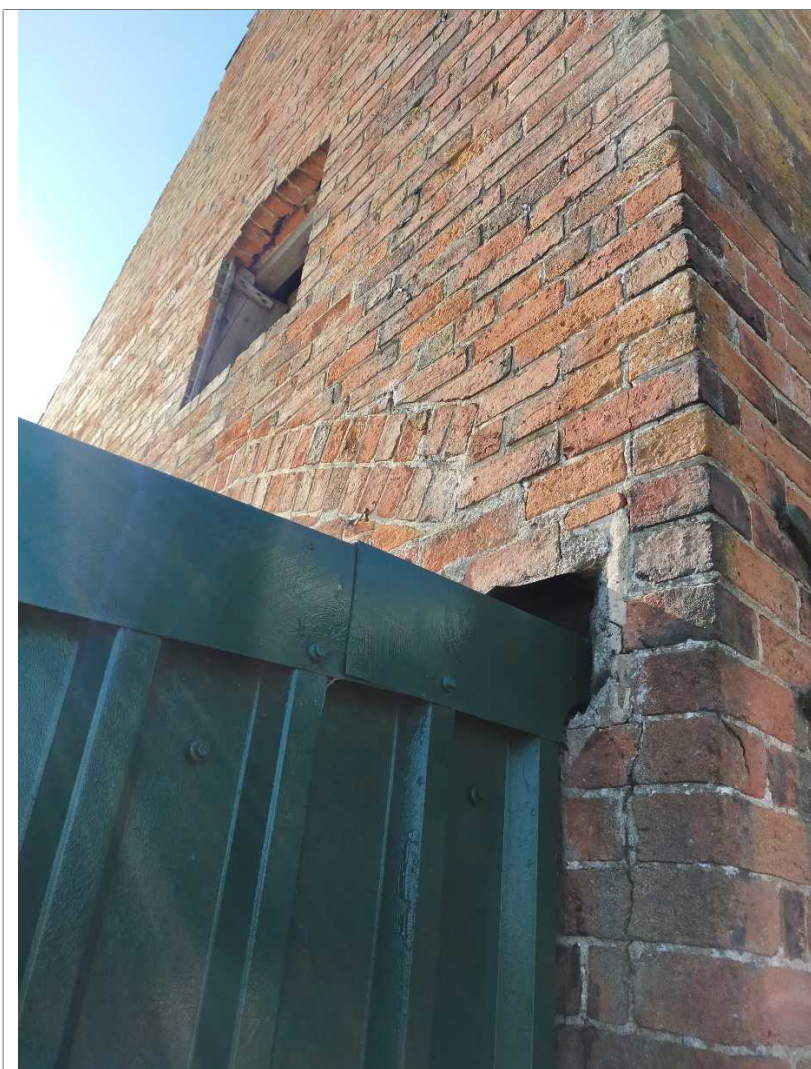


Photo 23 –

Cracks from where the brick piers have bowed outwards, due to subsidence and the load from the steel channel beams, have continued up the wall to the first floor window, then continued from the top of the window opening further up the wall to the roof line. Therefore, the gable end is in need of been taken down and being rebuilt.



Photo 24 –

Cracks from where the brick piers have bowed outwards, due to subsidence and the load from the steel channel beams, have continued up the wall to the first floor window, then continued from the top of the window opening further up the wall to the roof line. Therefore, the gable end is in need of been taken down and being rebuilt.



Photo 25 –

Cracks from where the brick piers have bowed outwards, due to subsidence and the load from the steel channel beams, have continued up the wall to the first floor window, then continued from the top of the window opening further up the wall to the roof line. Therefore, the gable end is in need of been taken down and being rebuilt.



Photo 26 –

Cracks can be seen on the internal first floor barn wall, stretching from first floor level at the south west side, up to the roof line above the purlin on the opposite side.



Photo 27 –

Cracks can be seen on the internal first floor barn wall, stretching from first floor level at the south west side, up to the roof line above the purlin on the opposite side. The wall at the top of the stairs also has structural cracks excess of 30mm wide at the top of the wall behind the mill tank. This is due to deterioration of the timber post supporting the beam which hold the wall up at Grd flr level. See Photo 30.



Photo 28 –

Cracks can be seen on the internal first floor barn wall, stretching from first floor level at the south west side, up to the roof line above the purlin on the opposite side. As can be seen, the wall at the top of the stairs also has structural damage with cracks excess of 30mm wide at the top of the wall behind the mill tank. This wall also supports the barn roof purlin. As can be seen, the walls are no longer square, plumb or level. The cracks are due to deterioration of the timber post supporting the beam which hold the wall up at ground floor level. See Photo 30



Photo 30 –

The timber post, which supports the beam holding the wall up above up to roof level. Has deteriorated in condition, showing signs of wood warm and rot. The post is simply sat on top of the York stone slab floor, not fixed to or recessed into it at all. Therefore, the post is structurally unstable, and could be knocked out of position very easily.



Photo 31 –

The timber post, which supports the beam holding the wall up above up to roof level. Has deteriorated in condition, showing signs of wood war and rot. The post is simply sat on top of the York stone slab floor, not fixed to or recessed into it at all. Therefore, the post is structurally unstable, and could be knocked out of position very easily. This wall needs taking down!

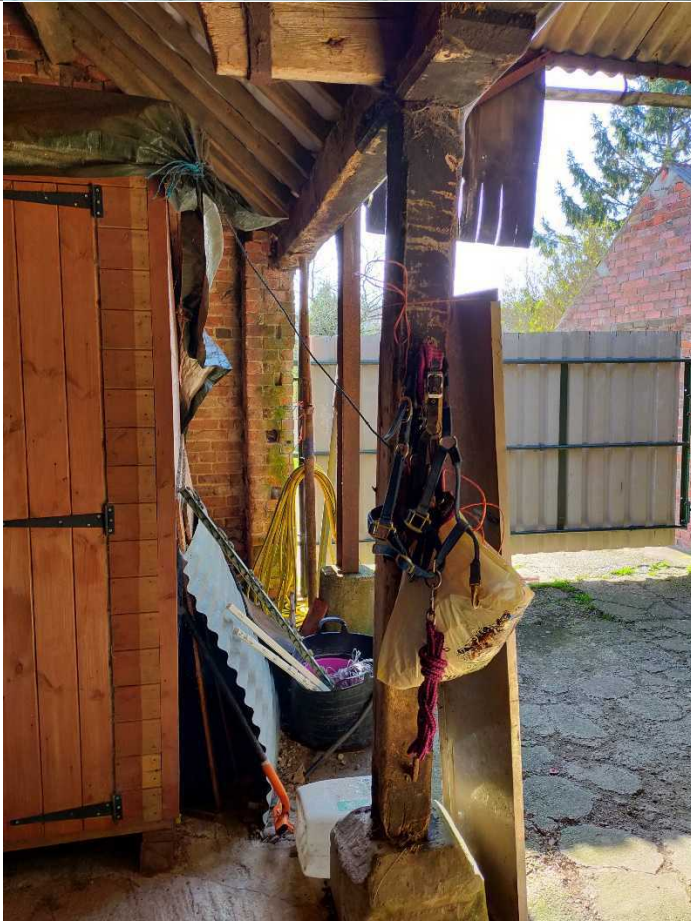


Photo 33 –

The structural timber posts supporting the single storey barn trusses have seriously deteriorated in condition due to water penetration – water running out of the blocked / sagged gutters above, weathering and wear & tear from the cattle live stock which used to be located in the shed. At the base of the timber posts, they show signs of failure and are in need of replacement / demolition.



Photo 34 –

Due to subsidence the gable end wall is no longer supporting the timber eaves beam which supports the single storey barn roof. The beam is now been held up by an adjustable acrow prop. Gaps can be seen at the top how much the wall has moved by where the timber beam (which is in a poor condition itself) used to sit on the wall.



Photo 35 –

The structural timber posts supporting the single storey barn trusses have seriously deteriorated in condition due to water penetration – water running out of the blocked / sagged gutters above, weathering and wear & tear from the cattle live stock which used to be located in the shed. At the base of the timber posts, they show signs of failure and are in need of replacement / demolition.



Photo 36 –

Covers have been tied to the timber structural posts to stop water running off the roof, down the posts and deteriorating the base of the posts.



Photo 37 –

Excess of 60 years, to access to cart shed by tractor, the king trusses were structurally deformed by raising the height of the bottom timber. These trusses are structurally unsound and are in need of replacement.



Photo 38 –

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Photo 39 –

Due to the change in floor level, the former pig stable sheds are not accessible to Building Regs standard by vehicle or pedestrian foot.



Photo 40 –

Where the original structural timber posts met the ground level, the timbers have rotted away and are currently being supported on both sides by addition timber posts, which are sat on top of the concrete floor slab, which was formed at a much later date.



Photo 41 –

Due to subsidence, earth movement and poor construction, cracks can be seen stretching from the front to the back of the stable shed floor slab.



Photo 42 –

Due to subsidence, earth movement and poor construction, cracks can be seen stretching from the front to the back of the stable shed floor slab. Soak-away drains run underneath the floor slab in line with the direction of one of the floor slab cracks. Due to the change in floor level, the former pig stable sheds are not accessible to Building Regs standard by vehicle or pedestrian foot.



Photo 43 –

The internal walls, which were extended at a later date and built on top of the floor slab, display cracks running the full height of the walls. These walls have been poorly constructed and the brickwork is not tied into the adjoining brick leaves.



Photo 44 –

The internal walls, which were built and extended at a later date were built on top of the floor slab. These walls display cracks running the full height of the walls. These walls have been poorly constructed and the brickwork is not bonded into the adjoining brick leaves. Where the timber beams which support the roof above are supposed to be supported by the internal walls, additional timber posts have been applied. This is due to subsidence of the walls, deterioration of the timber horizontal beams and the original timber posts being relocated.



Photo 45 –

Cracks due to earth movement can be seen in the concrete floor slab.

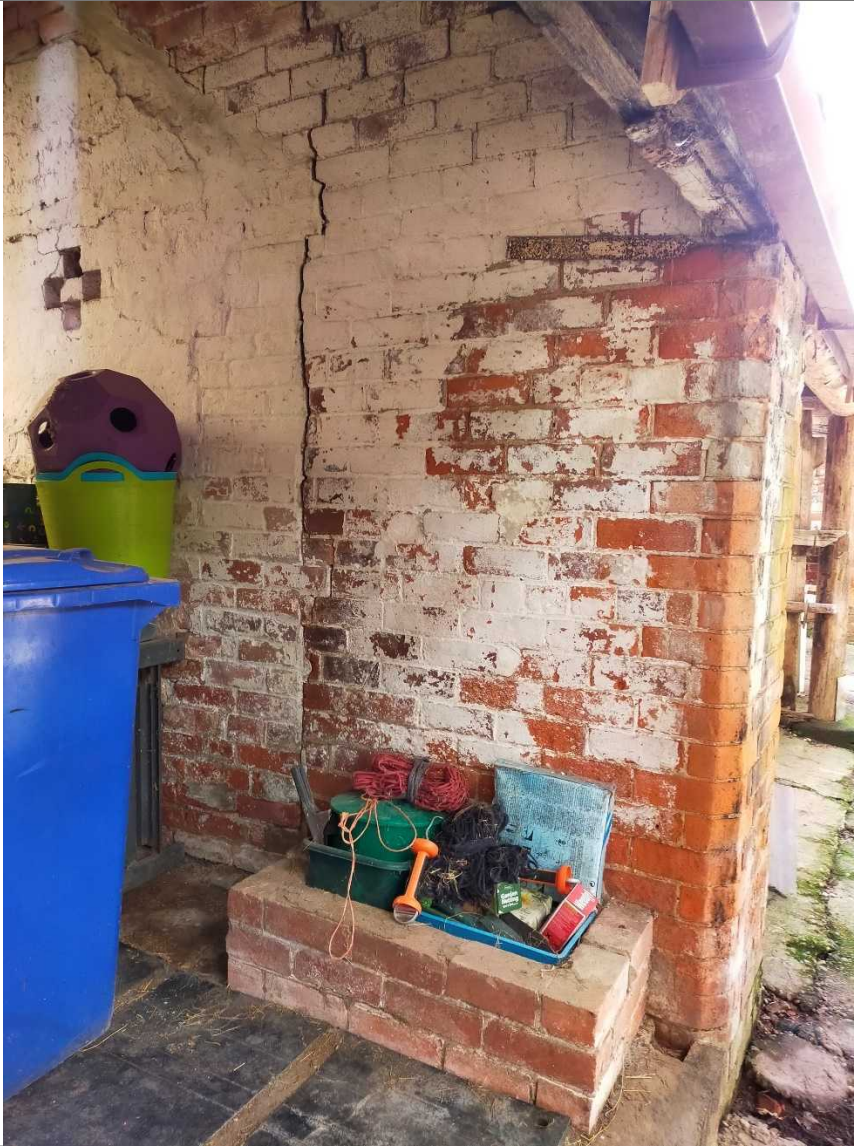


Photo 46 –

The internal walls, which were built and extended at a later date and built on top of the floor slab, display cracks running the full height of the walls. These walls have been poorly constructed and the brickwork is not bonded into the adjoining brick leaves.



Photo 47 –

The pig stable building structural roof timbers are in need of replacement due to weather deterioration / water penetration.



Photo 48 –

The internal walls, which were built and extended at a later date and built on top of the floor slab, display cracks running the full height of the walls. These walls have been poorly constructed and the brickwork is not bonded into the adjoining brick leaves.



Photo 49 –

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Photo 50 –

The pig stable building structural roof purlins and ridge beam timbers are in need of replacement due to weather deterioration / water penetration.