STRUCTURAL DESIGN STATEMENT
For
ANCILLARY FARM BUILDINGS
At
HOME FARM
LITTLE SUTTON
LONG SUTTON
SPALDING
PE12 9AJ



THE BARNS

Prepared by
White Structural Consulting Limited
1Park View, Thurlby, Bourne, Lincs PE10 0EU

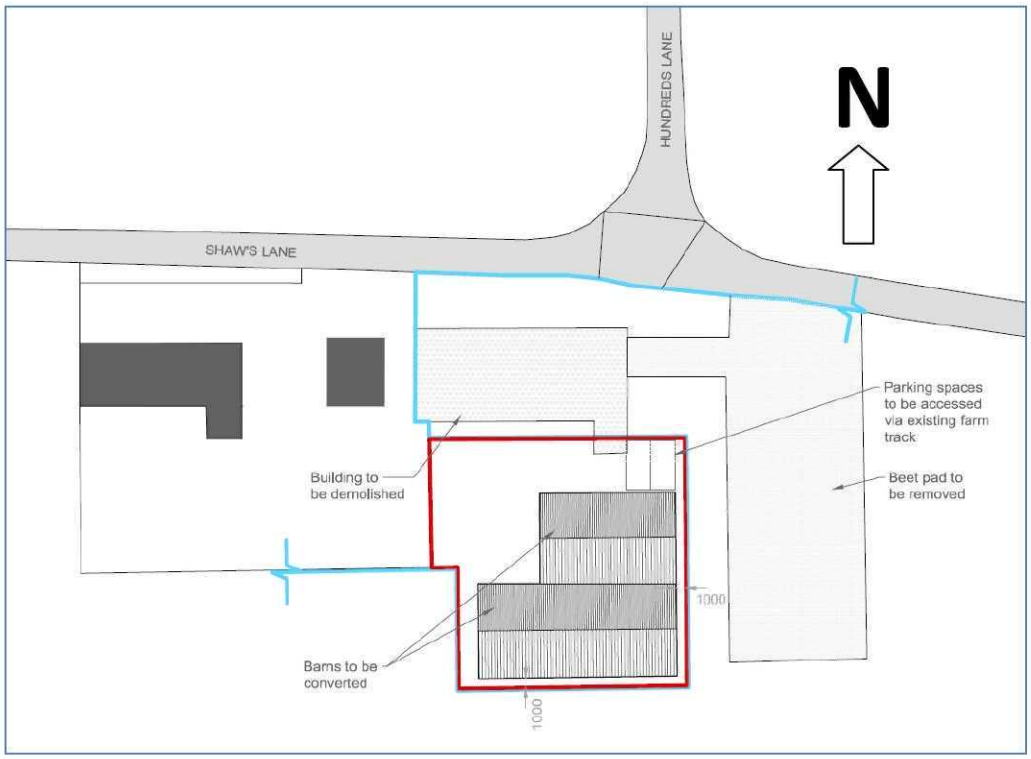
Project 529/01

STRUCTURAL DESIGN STATEMENT

Client: Mr and Mrs J Piccaver

Property: Ancillary Farm buildings

Site Address: Home Farm, Shaws Lane, Little Sutton, Long Sutton, Spalding PE12 9AJ



Context:

1. The planning proposals are to convert two adjoining agricultural ancillary buildings into a single residential house and demolish an existing barn. It is considered to be an appropriate opportunity to renovate and provide a viable use for the buildings.
2. A structural inspection was undertaken on the 20th January 2015 by K White of White Structural Consulting Limited to look at the form and condition of the fabric and the development of the buildings in order to assess and make comments on the proposed conversion. A summary of the structural form and observed structural defects have been illustrated on drawings 529/01/S011 to S014, prepared by White Structural Consulting Limited.
3. The proposed plans and elevations, referenced 1149-01-01-D001 to D004, have been prepared by Robert Doughty Consultancy, 32 High Street, Helpringham, Sleaford; and should be read in conjunction with this report.

Form:

1. The buildings to be converted consist of two adjoining structures; the northern structure is approximately 9.50m by 13.3m in plan with the main axes orientated East/West and the southern structure is approximately 10.0m by 19.4m in plan; also with the main axes orientated East/West.

2. The northern structure currently consists of;
    a. Solid full bonded 355mm thick brick external and internal walls.
    b. A dual pitched pan tiled roof supported on four softwood timber king post trusses with midheight purlins and a cat slide roof on the southern side where it adjoins the other structure. The roof timbers are all supported on the brick load bearing walls. There are a number of translucent roof light sheets on the southern slopes.
    c. There are no internal mezzanine floors and storage lofts.
    d. The ground floor consists of a ground bearing concrete slab of varying thicknesses between 75mm to 100mm, throughout.
    e. The foundations were exposed locally and consist of a narrow corbelled brick founded at around 700mm below ground level.

3. The southern structure currently consists of;
    a. A series of cantilevered reinforced concrete posts supporting a corresponding series of large spanning softwood timber trusses with two purlins per slope. The roof is a dual pitched pan tiled roof.
    b. Between the concrete posts are single skin brick infill panels.
    c. The Eastern gable has a similar height brick infill panel with internal piers and a ship lap timber boarding to the upper gable area.
    d. The western gable has similar height brick infill panels either side of a large double door opening. The cladding above is currently a vertical metal corrugated sheeting fixed back to the end truss.
    e. There are no internal mezzanine floors and storage lofts.
    f. The internal ground floor is an earth floor throughout.
    g. The foundations were exposed in a number of locations, principally the concrete posts were founded at a depth of around 1.6m, and the single skin brick walls only have a nominal depth concrete strip foundation. The exception to this is the end two panels either side which were found to be founded at around700mm below ground level with corbel footings.
4. There is a slight slope across the site from North to South.

5. Adjacent to the northern external wall there are a few self seeded shrubs which have recently been cut down to ground level to assist with the initial structural investigations and the proposed conversion.

Condition:

1. The overall structures are in reasonable structural condition and stable, however the robustness and durability have been reduced due to historic movement, accidental damage and a general lack of routine maintenance.
2. The northern barn is in better condition out of the two structures with a few localised areas of cracking to the brickwork and weathered brickwork.
3. The southern barn is stable and the roof structure in good condition. The main structural areas of deterioration are the spalling and cracking of the concrete posts and cracking to a number of the brick infill panels.
4. The non-loadbearing infill panel to the right of the double doors is unstable due to an accidental impact load. This is not affecting the overall stability of the structures.

Historical development, observations and comments:

1. The northern brick structure was likely to be the first to be constructed, followed by a period of modifications to the cat slide lean section and finally the construction of the open sided concrete posted structure to the south which was later enclosed with brick infill panels. The concrete posted structure is likely to have been constructed in the early 20th Century.
2. Internally there is an indication from the current pockets in the eastern gable wall of the northern brick structure that there was a raised timber storage area. The extent in plan is not readily apparent.
3. The roof coverings are in good condition and overall are protecting the timbers from water penetration, however there are a few localised areas of wet rot where the tiles have failed/ cracked. The guttering however is in poor condition and has caused extensive deterioration to the surface of the bricks especially on the northern section of the building.

Statement of Intent and description of proposed works:

The intent of the works is to convert the building into a single residential dwelling and to prolong the useful life of the building. The proposals take into consideration the overall form and condition of the building. The description of the proposed works should be read in conjunction with proposal planning drawings.

Design principles and concepts:

1. The underlying design principle is to utilise the existing structure and fabric for the conversion within the confines and conditions of the planning approval documentation and future sustainability of the structures.
2. As with all buildings there are general considerations but the design solution is bespoke to the individual building.
3. The concept for the recommended remedial works will be developed based on the above information and proceedings.

Signed:



K WHITE M Eng., C Eng., M I Struct E

References:

- *Discussions and consultation with the Client and Robert Doughty Consultancy*
- *Record photographs and notes taken on the 20th January 2015 by White Structural Consulting Limited.*
- *Planning drawings 1149-01-01-D001 to D004, prepared by Robert Doughty Consultancy*
- *Structural condition summary drawings 529/01/S011 to S014 prepared by White Structural Consulting Limited.*