St Bridget's Church, Brigham

Condition Survey and Stage One Report on the Tower

for

The Parochial Church Council of
St Bridget's Church, Brigham

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Contents

1. Introduction

This report has been prepared to support an application for grant aid under the English Heritage/Heritage Lottery Fund Places of Worship Grant scheme. The following elements concern the Tower and this report sets out the general condition and principal defects, and the reasons why it is at risk.

2. Summary

In summary, the Church Tower is in a poor and deteriorating condition due to the following contributing factors, and remedial actions are set out below:

a. The condition of the external masonry pointing is poor, including the later parapets, all faces of which have been over-pointed in the mid c20 with cementitious mortar and requires complete repointing; numerous joints are cracked and loose whilst others are adhering but holding moisture in the background masonry; moisture reservoirs are apparent at lower levels and damp conditions prevail internally at the lower stages;
b. The Tower roof slating at the upper courses and the ridges requires minor repair and overhaul;
c. The weathervane is much corroded and requires extensive repair or replacement;
d. The condition of the lead flashings to the Tower roof and the abutments with the Nave is poor, they are thin and loose, much repaired and damaged, and require replacement;
e. The Tower lead gutters, although well detailed in areas, are pooling in part due to minimal falls, which may indicate failure of the boarding or detailing of the framing, and this defect should be investigated and rectified;
f. The outlets from the Tower are single hole have very small outlets, without sumps, chutes or spouts, and are prone to blockages, in part due to lack of access for regular maintenance. They risk blocking and would benefit from a creation of sumps and chutes with overflow spitters above the hoppers and downpipes on the east elevation;
g. Rainwater pipes are of an adequate diameter but require an overhaul. The north rainwater pipe discharges directly onto the slating at the lead abutment creating a weak and hazardous detail, affecting the Nave west wall, which should be redetailed and reinforced to prevent further water ingress;
h. The south rainwater pipe discharges onto the Aisle lead valley gutter and a lack of fall and inadequate detailing has led to pooling, and this should be investigated and rectified;
i. Internally the Tower contains a southwest mural staircase, which has extremely thin outer walls, poorly ventilated throughout with small slit windows and is subject to excessive water ingress leading to plaster and mortar failure internally. This problem is exacerbated where the treads are built–in to the external walls. Repointing is required combined with selective grouting;

j. The Tower is well ventilated from the Belfry level via louvre openings, but these are in poor condition and inadequately detailed, and they should be improved and replaced, particularly to prevent birds entering the Tower;

k. The interior timberwork is believed to comprise reused early mediaeval timbers now supporting three bells at Belfry level, resting on stone corbels. Both the condition of the timber and detailing of the bell hanging and restraint and fixing is of concern. A programme of work to the Bells and their supporting beams is planned to be carried out under separate funding;

l. Lack of safe access in the Tower upper stages from the first floor has been the cause of much of the lack of maintenance at roof level. It is suggested that a full scheme of safe access should be developed. (A similar scheme has been provided at St John's, Skirwith);

m. The access doors from the Tower onto the parapet gutters are in a reasonable condition, although ill fitting and detailed and should be repaired and secured as they are a potential risk prone to water ingress. They are at danger of being left open, allowing birds to enter the Tower at this level;

n. Lightning protection is present with one downtape of some age. The cross finial may form an air terminal. Two downtapes are required, as a minimum. Possibly, the Tower installation should be extended to cover the Chancel. A risk assessment should be carried out to current standards and a revised scheme developed if required;

o. Internally the ground floor vaulted chamber requires additional ventilation via the west window and low level heating to reduce condensation;

p. Once the Tower has dried out the vaulted chamber should be replastered and limewashed;

q. Within the Nave damage to internal plaster finishes has occurred over a long period due to water ingress around flashings and water ingress into the wall core, and replastering of the west walls is required. A separate scheme of conservation is planned for the extensive scheme of painted decoration to the Nave and Aisle ceilings;

3. Background

St Bridget's Church, Brigham is Grade I listed and situated north the village of Brigham, close to the A66 between Cockermouth and Whitehaven and sits on a north-facing slope, on high ground, in a prominent position overlooking the Derwent Valley. It is a local landmark due to its elevated site and distinctive Tower.

The Church is located on a sloping ground, surrounded by extensive graveyards on all sides. The Tower rises above Churchyard and the surrounding mature trees, and the work of both the mediaeval craftsmen and the later nineteenth century work is a startling and surprising discovery in a small rural Cumbrian village. The Tower, with its steep roof and dramatic parapets, is a key feature, designed and built in the northern French Gothic manner between 1864 and 1876 by William Butterfield (1814-1900), a leading Architect of the early Ecclesiological movement of the mid-nineteenth century.

Butterfield replaced the mediaeval parapets and lead roofs of the entire Church with slated roofs and steeper profiles. The eave and gable details were also redesigned at the same time, along with extensive alterations to the interior, the most dramatic of which is the painted decoration to the ceilings and carpentry of the trusses and cross-beams, including stars, foliage and monograms. Brigham contains one of the few painted plaster ceiling schemes in Cumbria. Butterfield's work here is unusual, as it is on plaster, and has a lightness of touch when compared to other examples of his work.

4. Description

The Church comprises a west Tower, a broad Nave with a south Aisle and a large Chancel with a north Vestry. The Tower is believed to date from the early thirteenth century, with slit windows, and, therefore, is of a defensive nature and typical of the northern fortified Church towers of the period. However, it was not regarded as such by Curwen, or classified later by others, possibly due to the later mediaeval west door. The inter-mural stair is unusual in its form and position in the southwest angle. The list description reads:

"BRIGHAM BRIGHAM NY 03 SE 4/76 Church of St Bridget 3-3-67 G.V. I Parish Church. Late C11 with C12, C13 and C14 additions and alterations; restoration 1864-76 by William Butterfield. Calciferous sandstone ashlar, under graduated greenslate roof with coped gables, cross finials and shaped ridge tiles. 3-bay nave and south aisle with square 3-storey west tower and south porch. 2-bay chancel with north vestry. Nave has blocked north doorway under round-headed niche. C19 2-light windows. Aisle has buttressed wall with C14 windows, that in west wall almond shaped and that in east wall 5-light, all with heavily restored tracery. Circa 1390 porch has pointed arch and hoodmould. Tower has blocked C14 west door under 2-light ogee-headed window; 2-light bell openings and 1876 gabled roof. South and east chancel walls have been partly rebuilt in C19, but the lower courses retain on the south a small rectangular window and blocked priest's doorway; 3-light window retaining some of its original C13 tracery. 5-light replica C13 east window. Vestry has reused 2-light window with C13 tracery. Interior: C13 font. 3-bay aisle of round arches on round columns with waterleaf capitals. 1876 painted timber ceiling. Medieval cross slab built into north wall. Aisle piscina, sedilia and tomb recess for vicar Thomas de Burgh 1348; east window has flanking statue niches. Various sculptured fragments from the medieval and earlier Church. Pointed tower arch and vaulted lower chamber. Newel staircase in thickness of wall angle. Medieval cross slab built into blocked west door. Wall plaques to Langton family of Cockermouth. Pointed chancel arch. Chancel has C19 painted timber ceiling. C19 aumbry recess. Unsigned C19 carved white-marble wall plaque to Ann Mary Morris. C19 furnishings and fittings; C19 stained glass by Cox & Buckley and Sons, 1870 and by Alexander Gibbs, 1865."

The Tower is dated 1220 and was part of an enlargement of the Church which also included works to the Chancel. It is over twenty metres high and a parallelogram on plan, measures approximately eight metres by six metres and comprises three stages. It exhibits very fine

examples of rubble walling, decidedly superior in character to the adjoining work of the eleventh century. The west doorway was probably inserted when the Porch was added in 1390. The structure is slightly tapering with a scarcement at the first stage and an oversailing course above the Belfry from which rise Butterfield's parapets. Previously it had a battlemented parapet with short, carved pinnacles. Remnants of dismantled mediaeval masonry can be seen around the Church and in the graveyard. At the first stage there is an opening into the Nave for the Sanctus bell, once visible externally, and rung before and after services.

The interior of the Tower comprises a vaulted ground floor chamber, accessed through a screen from the Nave. The thirteenth century tall, broad west doorway has been blocked, presumably by Butterfield, but the adjacent mural stair doorway from that level is retained. The joinery is later with good quality joinery and ironwork. The mural stair is unusual in that there are pigeon steps halfway up, possibly utilising earlier masonry, and this space is lit by three small narrow, slit windows, two to the west and another to the south. The lower ground floor chamber is unlit, except by a high ogee headed, two-light casement window just below the barrel vaulted ceiling level.

5. Present Condition and Recommendations

5.1 Roof Slating

The Tower roof is covered in Westmorland green slates laid in diminishing courses, with ornate terracotta finial ridge pieces and upstand walls forming the east and west gables. The slating is fixed with copper nails through machined pine laths, which are visible from the inside of the roof space. The lime torching is complete on the underside and in good condition, and appears to require only minor repairs. The slates terminate against the gables with a well-detailed secret gutter. The slating appears to be in very good condition, and well detailed, with only minor slippage evident. However, the ridge area is damaged where additional saddle leadwork has been inserted. A number of the ridge pieces have been damaged but their effectiveness is not affected, and only re-bedding is required.

The gable upstand walls are capped with a dressed stone parapet copings laid at a steep angle, approximately 60^{o}, with flashings chased in well above the slate line. It is not known how the stonework is restrained but there is no sign of movement nor rotation of the kneelers. The gable masonry, which appears to be in good structural condition with only minor cracking up the north-east and north-west corners, are watertight, well detailed and able to withstand the weather in this exposed location. However, it is evident from the condition of the pointing at this level that the mortar has been replaced, possibly more than once, as it differs from that of the bedding mortar. The pointing is failing in a similar manner to the south and west walls of the rest of the Tower.

5.2 Abutment Leadwork

There are some areas of damage to the leadwork cover flashings to the slating at the Nave abutments with the Tower, which are loose, poorly fixed and detailed, and much repaired. This is a vulnerable detail that has failed previously. There is no tray through the Tower wall at this point and it would be impossible to insert one. Discharging rainwater from the northern Tower rainwater pipe increases the vulnerability of this detail.

At the abutment of the Nave with the Tower there is a longstanding water ingress problem. Damage has resulted to the decorated plaster ceilings of the Nave and South Aisle, and to wall plaster below, and this continues despite repairs having been implemented at various times, including repointing and the addition of deeper flashings.

By repointing the east wall of the Tower and re-detailing the leadwork and slating at the abutments, while directing run off away from the wall, improvements to the interior condition are possible. However, elimination of the damp conditions entirely may not be achievable. Additionally grouting above this area may provide further defence.

5.3 Parapet Leadwork

The parapet gutters to the north and south have been relaid in the last twenty years and the lead coated in a reflective paint. The lead flashings to the gutters are intact but the pointing is in poor condition.

In addition a lead tray appears to be laid through the parapet at flashing level and this appears to be effective. The flashing leadwork is well detailed around the two dormers, which provide access onto the parapet gutters.

There seems to be little difference in detailing and condition between the north and south parapets, although full access was not possible to the north. Both drain to the east with three bays of lead incorporating two steps of sufficient height. The lead appears to be Code 6 weight or thicker and appears adequate. In both cases the parapet gutters are poorly maintained and clogged with debris due to lack of access. Mould growth is particularly evident on the north side. The falls are minimal and pooling is evident at the west ends, indicative of poor detailing or failure of the boarding below the lead and both lengths should be lifted for investigation and relaid to steeper falls.

5.4 Lead Dormers

The detailing of the lead-clad dormers is of some age and the flat roofs in particular are badly detailed with a single flat sheet of lead laid in one piece across the top. A later drip mould detail has been added over the door itself for protection. Ideally the roof should fall backwards towards the slating and away from the door. The cheeks are single sheets of lead and should

be appropriately detailed with welted joints. The dormers are likely to require relaying completely with new leadwork.

5.5 External Walls

The general condition of the buff, calciferous sandstone is good, and it appears to be fairly resilient to the effects of cementitious mortars. Even where deep pointing has taken place there is very little evidence of stone decay due to salt migration. The exceptions are occasional face bedded stones and where contour scaling has taken place.

The dressed stonework of the lower, mediaeval stages of the Tower comprise large blocks that are also used to form the double lancet ogee opening of the ground floor and the fifteenth century double lancet belfry openings. The latter appear to be in good condition, with the central mullion having been replaced on all sides, with new arch masonry to the south elevation. The blocked fourteenth century west doorway comprises similar stonework to the quoins, and was built with a stone relieving arch above. The blocking panel of masonry appears to be contemporary with the Butterfield work as the coursing of the stone is similar to the upper part of the parapets.

The external walls were once rendered in a fine wet-dash, or harl, which was probably lost in the mid to late nineteenth century, or was simply left to decay since Butterfield's time. It is likely that the render stopped, or was feathered and died at the stone surrounds, with the limewash coats continuing into the reveals and terminating at the glass line. There is evidence of this fine finish across all surfaces of the Tower, but it has largely degraded over the faces of exposed stonework. However, the evidence remains clear as remnants of render can be seen extending beneath the cement mortar overpointing.

On the north elevation the condition of the bedding joints appears to be quite good, intact and flush, whilst the overpointing is superficial. On the south and west elevations, and probably on the east elevation which could not be accessed, the hard cement repointing appears to be of greater depth. It is evident that the original mediaeval pinning stones were packed very tightly into the joints allowing to be rendered and maintained relatively easily and where they remain this has enabled the wall to remain flush: even when the mortar has degraded few ledges are evident. Where the bedding mortar and pinnings have been removed and the wall is no longer flush, ledges have been created where water can sit and drive into the wall, and these will have to be replaced prior to any future repointing. Across all wall surfaces the pointing is loose and falling away and allowing water to penetrate the walls across large areas.

Additionally a drip course below parapet level, indicating where the upper part of the retained mediaeval masonry, forms a break line with the Butterfield work. It has a cement fillet laid on top to throw off the water and this has failed. Moreover the pointing has fallen out from the

perpend joints along its length allowing water to cascade down the wall; this detail requires deep packing and repointing and possibly a lead flashing laid over.

Internally at high level it is evident that the Butterfield gable walls are relatively thin but built of large sandstone blocks with fine joints and are watertight. They appear to be able to withstand the weather due to their solid construction and detailing, with large quoin stones and window surrounds. Below that level the wall thickens out and here the mediaeval masonry is intact and unaltered down to Ringing Floor level.

The majority of the pointing on the west and south elevations is a raised 'V' shape cementitious mortar of some depth, believed to date from the early to mid twentieth century. It has been patched in a number of areas where it has come loose in recent times but essentially the mortar is of one period. It also continues across the north elevation but this is less damaging and more superficial. A similar pointing mix has also been used above the drip course level on the parapets and this can be seen to be failing as, in this case, the joints are narrow and provide less adhesion and key. On the north elevation, where the superficial mortar has come away, the tight pinnings and narrow joints of the large blocks of thirteenth century masonry are intact

On this wall earlier over pointing took place at some time prior to the cement mortar repointing evident today. This comprises a fine lightweight mortar containing lime but also, potentially, an aggregate that may be a by-product from the local iron smelting industry. The colour is a bright red/pink and similar in colour and particle size to the St Bees sandstone used elsewhere on the Church. Crushed stone from that source may have been used, but it is also likely that there are chemical components to the mortar and that an industrial waste product may have oxidised within the wall over time producing the distinctive colour.

Essentially the condition of the surrounding stone is very good but it is suggested that the mortar should be tested to ensure that any deposits would not have a persistent affect on its stability, or on any repair mortars. The content of the mortar is unknown, but it is believed to have a lime base as it has decayed where moist conditions prevail. It is suggested that testing and chemical analysis is required to determine whether or not the mortar should remain in the wall or if it should be removed and, if so, whether chemical deposits have been left within the joints or stonework. Due top leaching this may have a detrimental effect on any surrounding, existing mortars or to repointing mortars.

Excessive amounts of moisture in the wall, particularly at the lower level, below the scarcement, is indicative of water reservoirs within the thickness of the wall, drying both inwards and outwards and forming small streams to the outside following rain. It is likely that within the thickness of the wall, approximately up to1400mm thick, that there are large voids where pockets have formed due to mortar washing out and areas of masonry that have moved. This

provides pockets within the structure where water can collect. However, due to the impervious pointing it cannot escape through the joints.

There is staining on the exterior, and indicators of biological growth on the surface of the walls, particularly around the joints. Water penetrating at high-level will have found multiple pathways allowing it to drain down inside the core of the wall. The highest degree of water ingress is evident at low-level, to the window soffit of the lower ground window and to the west arch, and where dripstones or throughs are evident. It is unlikely that the wall can withstand prolonged driving rain, which is likely to penetrate through the masonry and especially in the south west corner, without grouting at least at the lower stage but possibly higher up the Tower.

The extent of any grouting would depend largely on testing and opening up of areas from the inside during the investigations stage, but also on the progress of the grouting during works on site.

The matter of sulphate contaminants in this location should also be considered. Brigham is only six miles from the sea and, not only is it prone to south westerly prevailing winds, but also sea salts will be carried with the wind and partly deposited by the rain. Although further rainfall will partially remove the salts from the surface it is likely to be carried into the permeable masonry. The use of some form of accelerators in the aggregates in the form of industrial waste would have been commonly used, but also as a means of creating a salt-resistant mortar. The level of contaminants within the wall transported into the masonry from driving rain, or from deposits in the later mortars, should be tested within the stone and mortar to inform the specification of a new, robust pointing mortar.

5.6 Internal Walls

A large mural stair rises from the ground floor to the Ringing Floor in the southwest corner of the Tower, resulting in a drastic thinning of the masonry at this point that has led to the attendant damp penetration problems. The mural chamber is lit dimly by three small openings, currently glazed and which no longer provide ventilation. The entire area is extremely wet with penetrating damp evident where the treads enter the wall and also at the slit openings and across the wall surface. A full measured survey has not yet been carried out but it is believed that external walls at this point are less than 400mm deep. They may even be constructed of one single skin of masonry thus enabling penetrating rain to drive through the joints unless they are fully protected by deep packing, consolidation and repointing externally. The wall should be solid, fully filled and grouted.

Internally lime plaster coats have been lost from the mural stair and the condition of the pointing is also poor, probably due to permanently damp conditions. The walls should be deep packed, consolidated, flush pointed and limewashed to provide a moisture sink, and to increase reflection and light levels.

5.7 Roof Structure

The roof structure dates entirely from the Butterfield restoration with pine trusses, rafters and purlins laid on a new wall plate with the framing of the gutters behind. The condition of the carpentry is excellent, the roof space is well ventilated by east and west louvered openings and the area remains dry. There is evidence of past water ingress, possibly prior to the relaying the gutters in the south east corner, where a number of rafters have been replaced. The two king-post trusses span east - west and have further timbers positioned over the top of the tie beams forming an unsafe walkway around the roof space. The roof structure and truss ends appear to be in good condition at this time along with the wall plates. Where the purlins are built into the west gable wall they are not fully bedded and the roof structure oversails at this point forming a well-ventilated void with only minor evidence of woodboring beetle in these areas. There is little evidence of water ingress around the dormer windows but the doors giving onto the parapets appear to be in a fair condition and will require some repair.

The trusses are of a simplified king post design without bracing. An additional intermediate tie has been placed between the purlins, possibly to brace the roof structure at this point, or to provide an arrangement from which to lift out the beams from below. The sections of the timber are generous and there is no evidence of joints opening up or other defects. A number of later metal connections have been added between the principals and the tie beams and, although there is minor rust that should be cleaned out, they appear to be sound and effective.

The west weathervane is likely to date from the 1870's, with a copper cross and a cockerel wind indicator atop. The metalwork is in poor condition with much corrosion to the cross and its fixings and it should be restored and re-gilded prior to refixing on non-ferrous dowels, and the air terminal refixed.

5.8 Rainwater Goods

The gutters of the Tower currently drain to two points on the east elevation where small circular outlets, with a right-angle bends, drain into downpipes. One hopper remains on the south downpipe which discharges onto the lead gutter above the Arcade. There is a significant restriction in water flow at the outlet that could lead to blockages. Ideally, the outlets should be redetailed, with sumps and chute outlets, with weired spitters positioned over the hoppers, to reduce any risk of debris blocking the downpipes.

5.9 Tower Interior

Currently access to the Tower and the valley gutters for maintenance purposes is difficult and wholly inadequate. Safety could be improved with the installation of ships ladders, grab rails, a walk was at roof level, hand railing and lighting at this level and a feasibility scheme drawn up. Within the Tower a walkway, constructed north – south, should be provided above the bell level, to provide access to both hatches onto the parapet gutters. Below the level of the bells a

temporary access level has been created with reused track rails inserted and spanning east west. They are of minor archaeological interest and may be removed or retained but not incorporated into any future access scheme.

5.10 Timber Bell Louvres

Pine timber louvres cover the Belfry openings on all four sides and provide a high-level of ventilation to the interior. However, they are poorly detailed and insecure and not bird-proof. Due to the design of the timberwork, it is extremely difficult to secure mesh to the inner face and to prevent access by persistent roosting birds. In addition, the louvres are not waterproofed and the pointing surrounding the frames has fallen away allowing water ingress. This has clearly been a problem for a number of years as the inner cills have been rebuilt with a tile detail. However, the cill is flat and does not drain outwards. The problems of water ingress are obvious. Ideally the inner cills should be redetailed to slope and drain outwards providing a waterproof interior detail. The louvres themselves should also be replaced and redetailed, and provided with secure stainless steel bird proof mesh internally.

5.11 Bell Supporting Beams

The reused mediaeval timber beams spanning from west to east appear to be reused, possibly from the thirteenth century, and comprise oak members from either floor timbers or a previous bell frame. The present position of the bells is in a raised position above the Belfry. The previous frame was likely to have rested on the stone corbels immediately above the Belfry windows. The condition of the timbers is poor and they have been much reused. They presently sit, unrestrained, on single bearing beams on the east and west walls. At some stage small rusting metal brackets have been fixed as restraints and the question of the stability of the beams in their current position is questionable as it does not appear that they are dowelled or secured in any way. The Diocesan Bells Advisor has provided a separate report on the condition of the bells and their hanging. Although this touches on the condition of the supporting timber, it is suggested that a full detailed inspection is carried out. The beams themselves exhibit evidence of wood boring beetle and there is some reduction in cross section across their length. Ideally their structural strength should be assessed and any work of strengthening carried out, and timbers treated and adequately secured in position to enable the bells to be swung or chimed but not rung.

The bearings of the bells are an odd design and appear to be let into the oak beams. There is possible movement outwards between the beams, but at this time it is impossible to check the bearings and a report by a Bell Hanger has been commissioned by the PCC. It will be necessary to seek separate funding for this expensive urgent element of work which is not eligible for EH funding.

The Bell Advisor recommends that the bells be taken down and rehung, and the crown staples replaced, and that other work is carried out to secure them in the future. However, there is no

bell hatch or access for removing the bell, which would be through the Belfry louvre windows during repairs to the Tower masonry.

5.12 Bell Hatch

As part of the access provision at high-level some means of lifting the bells should be incorporated into the walkway as this would be useful as a means of hoisting the bells for removal in the future through the west bell louvres as access to the ground is obstructed by the vaulted ground floor chamber.

5.13 Internal Plasterwork and the Nave and Aisle Painted Decoration

The plasterwork to the Nave has been affected by water ingress on all three sides. Of most importance is the loss of the painted decoration of the south Aisle, and this has resulted in a number of bays having lost their decoration and been replaced in plain plaster. In addition, the plasterwork above the Nave arch and to the north of the Tower is also affected. This is due to water permeating through the core of the wall and evaporating to the inside of the Nave. Damage to the south Aisle is likely to be due to failure of the gutter above and the detailing of the valley gutter north outlet now removed.

A separate scheme of conservation is planned to the Nave and Aisle painted decoration to take place after works to the Tower repairs and once the walls have dried out.

Internally the base of the Tower is affected by penetrating rain to the west wall and to the ceiling area. High moisture levels are also in part due to the water ingress in the stair area, which is causing dampness in the floor of the Tower. This has resulted in excessive damp and algae growth around the walls and the west window and extensive failure of the plaster and mortar throughout. In addition, the area is poorly vented and humidity levels are high, and this has contributed to the failure of the plaster, which is evident across all four walls and the ceiling. Additional temporary ventilation from the Nave through two open panels in the modern screen may improve conditions.

It is believed that the area was replastered approximately twenty years ago using a three-coat plaster specification provided by the Diocese. This appears to have failed, and the likely reason is that the mortar mix is too weak, there is insufficient lime binder and the type of sand used is too fine. In addition, the type of paint applied is a modern impermeable emulsion, which is lifting from the wall due to the dampness and is taking large chunks of plaster skim with it.

The condition of the Tower ground floor plaster is poor and cracking is evident across all walls, ands especially the ceiling, and measures have been taken to remove loose areas and areas which have been patched, again, in inappropriate materials. The ceiling plaster is loose in areas, and it will require replastering completely within the next two years.

In addition, the west window is suffering from damp penetration at the soffit and to the reveals, and the condition of the stonework mullion and surround is poor and decayed and may require some stone replacement internally. The glass is relatively modern and it is likely that a previous opening light has been lost in this location. It is recommended that this be replaced with a simple opening hopper ventilator, operated from the ground, to provide secure background ventilation.

The ventilation of the Kitchen is impossible at present. Activities of the users create moisture, and heating in this area should also be considered.

5.14 Internal Joinery

The door to the base of the Tower is a simple boarded door of nineteenth century date with some damage to the lower boards due to damp conditions within the stairwell. Ideally, it should be redetailed to allow the maximum amount of secure ventilation up the staircase from the lower Tower floor, which will increase the chimney effect within the Tower. There is no door at the first stage.

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Fig. 1 – The Tower from the south.

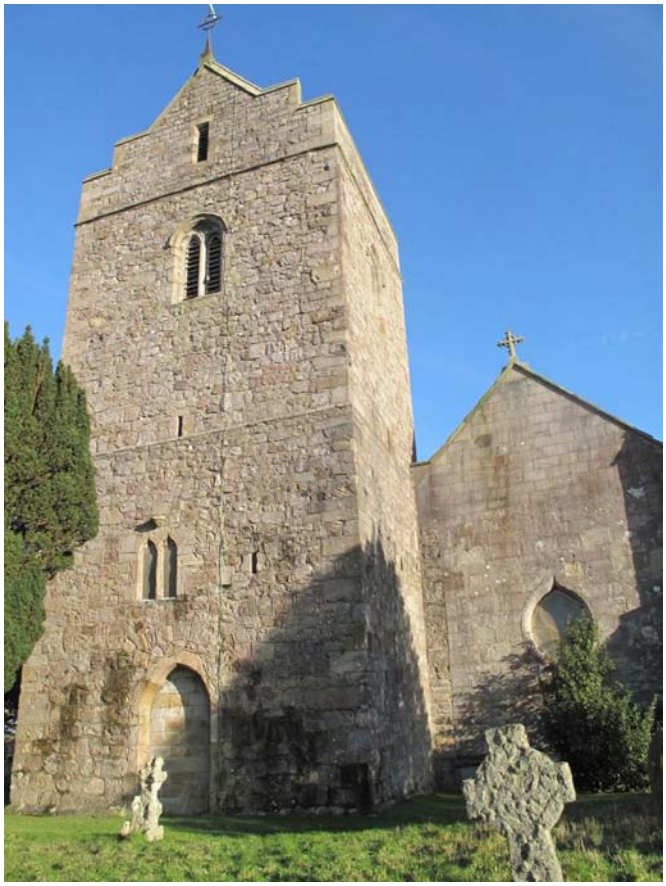


Fig. 2 – View from the south-west.

Fig. 3 – Detail of the upper stages and parapets from the north-east.

Fig. 4 – East facing gable and rainwater outlets.

Fig. 5 – South parapet, slated roof and dormer roof access hatch.

Fig. 6 – North elevation upper stages and parapet.

Fig. 7 – Upper stages and south parapet.

Fig. 8 – South oak bell louvres.

Fig. 9 – Ringing Floor south window with timber louvres.

Fig. 10 – South window to mural stair with fixed glazing and profiled overpointing.

Fig. 11 – Condition of the pointing with water drying out from reservoirs within the wall core.

Fig. 12 – Condition of the west oak bell louvres showing their condition and poor fit to the surround.

Fig. 13 – West upper window to ground floor vaulted chamber.

Fig. 14 – Blocked west door and surrounding projecting pointing and damp patches.

Fig. 15 – West window to mural stair with out-dated and inadequate lightning protection.

Fig. 16 – Open joints to base of wall and condition of failing cement pointing.

Fig. 17 – Condition of the south wall pointing with evidence of previous render.

Fig. 18 – Superficial modern cement pointing on north wall over C19 mortar repairs showing the flush nature of the old joints

Fig. 19 – Failure of mortar joints over extant, flush lime mortar bedding.

Fig. 20 – West wall scarcement with failing pointing and cement filet.

Fig. 21 - Loose pointing and open joints to upper stages of west wall.

Fig. 22 – Condition of the east wall and abutment with the Nave roof.

Fig. 23 – View of the abutment with the South Aisle gutter with pooling at the west end

Fig. 24 – The north parapet gutter east flashings, copings and parapets.

Fig. 25 - The north parapet gutter west flashings, copings and blocked gutter.

Fig. 26 – Condition of the south access dormer leadwork and patched leadwork flashings to copings.

Fig. 27 – Cracking and open joints to parapets at the south west corner.

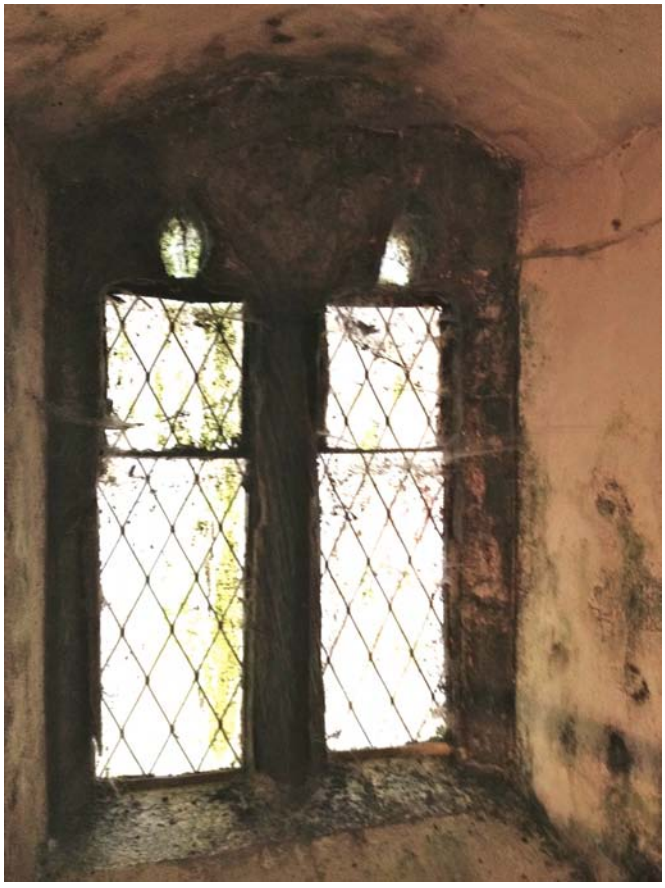


Fig 28 – Condition of the high lancet window to the vaulted chamber.

Fig. 29 – Damp conditions to window reveal and plaster failure.

Fig. 30 – Plaster failure to ground floor surfaces and monuments.

Fig. 31 – Plaster coats de-bonding from backing masonry due to high moisture levels and incorrect specification.

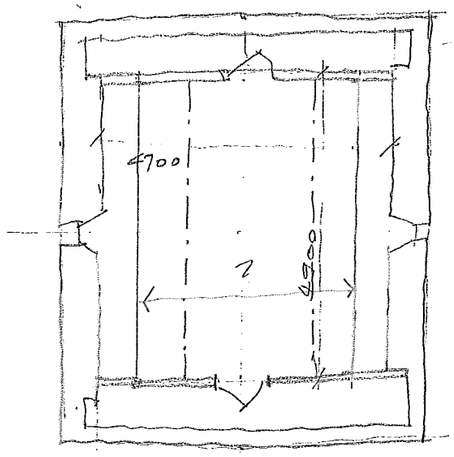
Fig. 32 – The mural staircase in the south-west corner with failed plaster finishes and water ingress through the outer walls and soffit.

Fig. 33 – Fixed glazing to upper slit window with cement and mastic repairs.

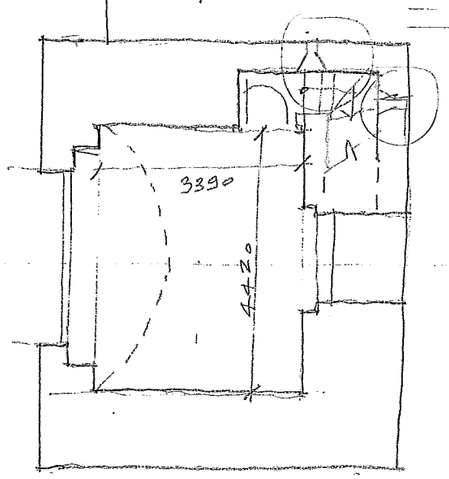
Fig. 34 – Condition of Belfry louvres and bird guarding.

Fig. 36 – Inadequate access provision at roof level.

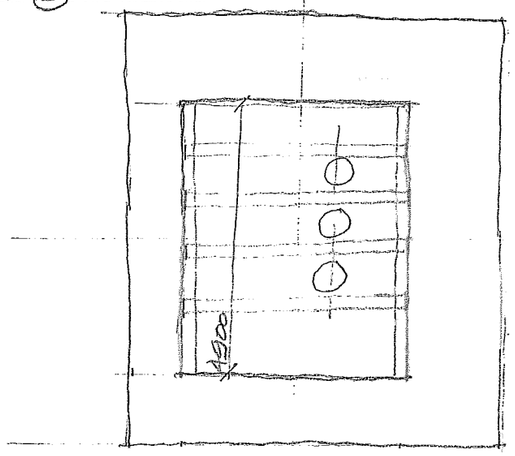
Fig. 37 – Access ladders and temporary platform at Belfry level.



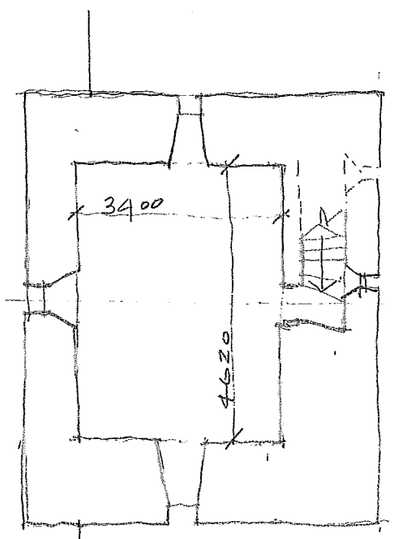
ATTIC (5)



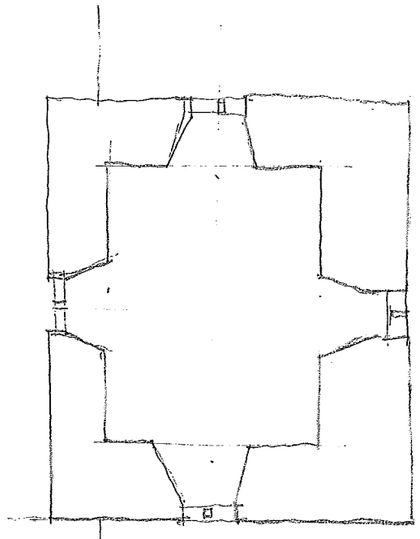
GROUND (1)



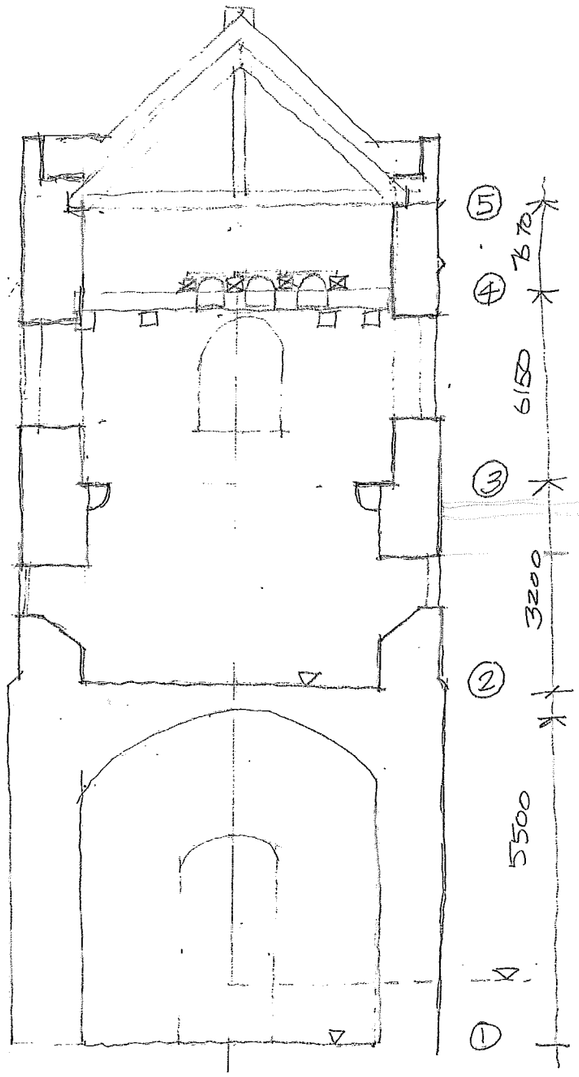
BELL LEVEL (4)



FIRST STAGE (2)



BELFRY (3)



BRIGHAM - ST BRIDGET
SURVEY 1:100 APPROX
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MARCH 2012.