Site Survey

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Project No:	**12299**		
Project:	Church of St Mary, Chedzoy	Report No:	12299-MNW-XX-XX-RP-S-0401
Engineer:	SS	Page:	Page 1 of 6
Date of visit:	8th May 2024		

1.01 Mann Williams have been engaged by the PCC of St Mary, Chedzoy to review a number of fractures within the South Transept of the Church.

1.02 A visual inspection was undertaken by Mann Williams on 8th May 2024. The weather was fine and dry for this visit. During our visit we met with Carole Edmunds (church treasurer to discuss the issues of concern),

1.03 The church is Historic England Grade I listed with C13 origins. From our inspection it is clear that the South Transept area of the church has historically been substantially altered.

1.04 The south wall of the transept is constructed in coursed rubble stone masonry (predominantly Blue Lias but with some Ham Stone). The elevation has a single large window with limestone ashlar tracery divided into four main window panes by three mullions (Photo 1).

1.05 Structural movement is evident extending down through the parapet through the keystone at the head of the window (Photo 2). Movement is predominantly focused around bed and perp end joints. Internally, the facture is evident continuing down the eastern reveal of the window (Photo 3). The tracery over the central mullion has displaced leaving daylight visible through the junction. The fracture at above the head of the window is also open through to the interior of the church, promoting water ingress. Reassuringly, little sign of masonry movement / fracturing was noted below cill level of the window.

1.06 The pattern of movement suggests that historically there has been settlement of the east and west flank walls of the South Transept, relative to its south elevation. It appears this has resulted in the movement concentrated to the side of the window and above its head. We suspect that whilst movement may be ongoing, this will only be to a limited extent. We also suspect that where historical fracturing has occurred, this has only been superficially face pointed in the past with the mortar prone to dropping out and exposing the deeper fracture through the core.

1.07 We advise that the fractures identified be raked out and deep pointed in a suitable lime mortar. The fracturing through the core of the wall should also be fully filled with lime grout. A similar approach is considered appropriate for the window tracery. In order to help reinstate some integrity to the masonry above the arch, we would suggest installing stainless steel sprio ties in the bed joints. These should extend across the fracture on both inner and outer stone faces.

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1.08 The cross at the head of the elevation is likely fixed down into the parapet with a ferrous dowel which will result in damage to the stonework as it corrodes and expands. Given its location, this has potential to exacerbate the fracture above the head of the south window. This should be investigated as part of the work with the dowel drilled out and replaced in Grade 316 stainless steel (subject to findings on removal). Similar works are required to the cross above the parapet on the south elevation of the porch, which whilst we understand to be loose shows no appreciable evidence of fracturing from ground level (Photo 4).

1.09 The elevations of the South Transept (as a whole) would benefit from some repointing and localised brushing back of friable sections of the stone. The elevation is predominantly face pointed in cement pointing which is now failing and should be removed (Photo 5). In some areas it is evident that this has accelerated damage to the stonework (predominantly Blue Lias) and a lime mortar replacement is needed.

1.10 We have considered whether it would be beneficial to undertake a period of fracture monitoring. However, based on this visual inspection and the current extent of fracturing we do not consider this would be particularly informative. Current levels of movement are not sufficiently severe to warrant consideration of remedial foundation work. Monitoring may demonstrate some seasonal opening and closing of fractures but based on current levels of movement review of such work would unlikely conclude that remedial foundation works were appropriate.

1.11 We note that at ground level, the perimeter of the church has a drainage channel formed in clay tiles with intermittent gullies (Photo 6). The tiles are displaced and uneven which will allow local concentrations of water going to ground. Concentration of water going to ground has the potential to locally soften founding soils and result in foundation movement. Note with reference to British Geological Survey online mapping, the church is underlain by superficial deposits of sands and gravels over a bedrock geology of Mercia Mudstone (dominantly red mudstone). It is possible near to surface level ground bearing capacity is relatively poor with the potential for clays to be present. Clays close to surface level would likely be sensitive to shrinkage / swelling with changes in moisture. The existing below ground drainage arrangement should be determined insofar as practicable and consideration should be given to upgrading the below ground drainage system such that each rainwater pipe discharges into its own gully.

1.12 The east wall of the South Transept (Photo 7) also shows signs of structural movement. This elevation has been much altered. Earlier stone columns are expressed in the external face of the east wall along with remnant of a masonry arch (Photo 8) that are cut through by the later window tracery. Weakness in the elevation will be present due to a combination of construction joints in both the foundations and the masonry superstructure.

1.13 Internally, movement was evident around the head of the main window of the South Transept east wall (Photo 9). An ashlar voussoir has dropped within the arch owing to differential movement and a fracture has opened up in the internal face of the wall above. The open joint in the voussoir requires raking out before being fully filled in a combination of slate and deep pack pointing. The fracture in the masonry above should be stitched with stainless steel spiro ties let into the bed joints. Other fractures to the internal face of the wall can be deep pointed and this utilised as a means of future monitoring. This includes the deep fracture to the south reveal of the high level window recess (historically the window has been infilled with masonry on the external face of the wall only). During our visit we observed and active bees nest in this location.

1.14 The west wall of the south transept also shows some fracturing to the internal plasterwork again around its infilled high level window. Externally this movement is less evident.

1.15 As the west wall of the South Transept returns through the arch to meet the south wall of the South Aisle, there is notable fracturing beyond the expressed column (Photos 10 and 11). We anticipate this fracturing is likely a consequence of increased loading historically being applied to the arch when the south transept was constructed altering the earlier aisle. Movement is consistent with settlement of the column at this junction owing to increased loading on existing foundations. It is considered that these historical weaknesses have never been repaired. Plaster is currently missing in this area; the exposed coursed rubble masonry shows some local movement in the bed and perpend joints (Photos 10 and 11). We would suggest that deep pointing and grouting of the fractures in this area would be appropriate. Where plaster is to be reinstated use of a Telling Lime Brick Mesh could be considered to improve resilience against future fracturing. However, we understand that currently reinstatement of areas of lost plasterwork will be a low priority.

1.16 As with the south elevation, the east and west elevations of the South Transept would also benefit from brushing back of friable sections of the stone and removal of failing cementitious face pointing with this being replaced in a suitable lime mortar.

Photo 1 – South Elevation of South Transept

Photo 2 – Fracturing above head of window and displacement of window tracery

Photo 3 – South Transept, south window (internal view). Fracture through head of window extending down east reveal.

Photo 4 – Cross above the south entrance porch.

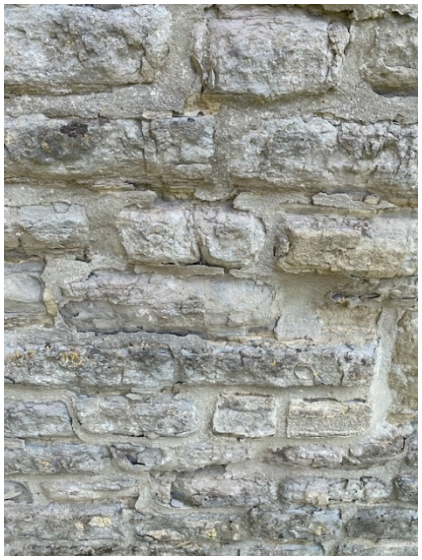

Photo 5 – Failure of cementitious face pointing and degradation of stonework.

Photo 6 – Fractured / displaced drainage channel to perimeter of church

Photo 7 – East elevation of South Transept

Photo 8 – East elevation of South Transept. Column and arch relating to earlier layout.

Photo 9 – Fracturing of East Window of South Transept with displacement of Voussoir.

Photo 10 – Fracturing of South Aisle south wall adjacent intersection with South Transept.

Photo 11 – Fracturing of South Aisle south wall adjacent intersection with South Transept.