

Consultant Advice Note

Job Number: 14794
Project Title: Manchester Art Gallery, Consultant Advice Note
Doc Ref: 14794-BKP-14-ZZ-TN-S-0003
Purpose of Note: Highlight structural failures that require remediation

Date: 13 May 2024

Introduction:

BKPL have undertaken a full elevation survey of the Manchester Art Gallery buildings from ground level to facilitate the scoping of WP14 and WP15, Phase 2 works. The notes taken during this survey are demonstrated on drawings *14794-BKP-14-ZZ-DR-S-92-0801* to *...0808*.

During this survey two failed lintels were observed on the Athenaeum basement, which have historically caused movement and cracking to the elevation above.

These lintels require replacement to ensure the ongoing stability of the elevation. Due to the sequencing of the works at the gallery, BKPL suggest this remedial work is brought into WP8, rather than waiting for Phase 2.

1 George St - Lintel 1

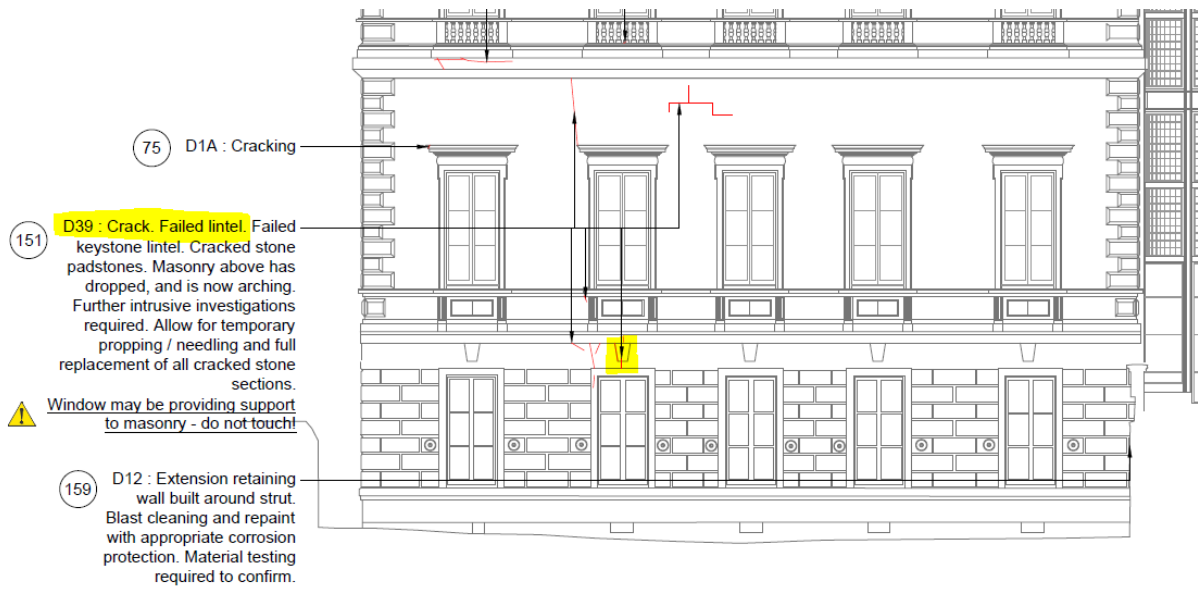


Figure 1 - Part Elevation to show location of lintel.



Figure 2 - Failed, cracked lintel – likely supported by the window frame



Figure 3 - Joint slippage around the keystone



Figure 4 - Shear crack at left hand bearing of lintel, previously infilled with mortar



Figure 5 - Bed joint cracking over the window above, where the masonry has settled.

1.1 Discussion

The lintel has a wide crack (5mm) through the centre, and a shear crack to the left-hand bearing. The lintel has dropped, and is likely now supported by the window frame. It appears to be historical, however, it has resulted in the keystone above slipping, and the likely cause for the masonry above to have settled.

Due to the position of the windows above, the whole panel has dropped, and the masonry panel above the first floor windows is now arching, resulting in the crack pattern observed in the bed and perpend joints.

The lintel presents a risk to any works around the window, as this is highly likely to be supporting the lintel.

2 Princess St, Lintel 2

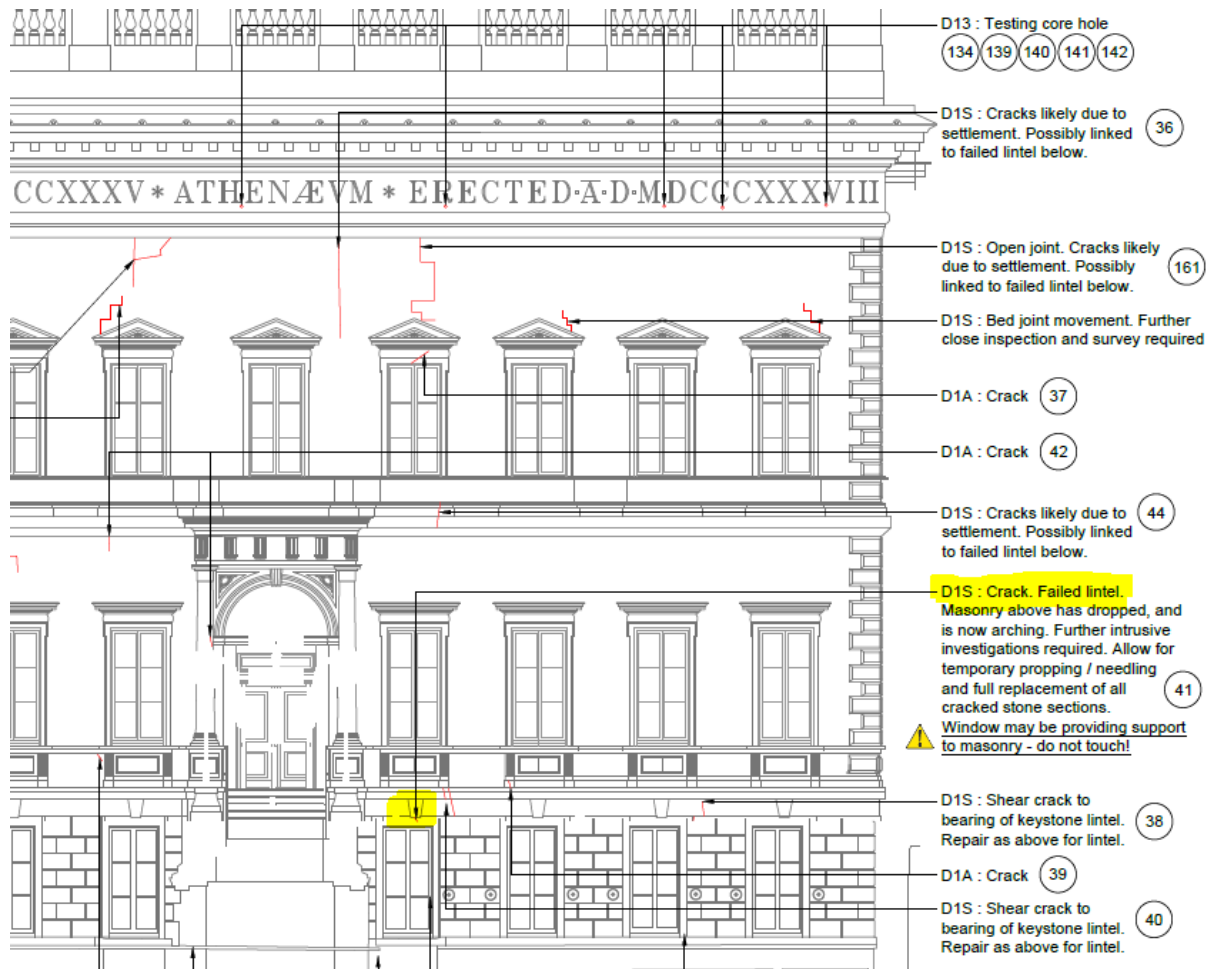


Figure 6 - Part Elevation of Princess St Elevation



Figure 7 - Failed Lintel, offset crack. Additional flexural crack at bearing.



Figure 8 - Shear crack at bearing of voussoir of keystone lintel.

2.1 Discussion

The lintel has a crack (3mm) diagonally across the centre, with a flexural crack to the right-hand bearing. The lintel has visibly dropped due to the diagonal nature of the crack, and is likely now supported by the window frame. It appears to be historical, however, it has resulted in the keystone above slipping, and the likely cause for the masonry above to have settled.

Due to the position of the access door and windows above, it is not clear if the masonry panel has dropped, or if there is another cause of the crack pattern observed in the bed and perpend joints above.

The lintel presents a risk to any works around the window, as this is highly likely to be supporting the lintel.

3 Conclusions

The 2no. highlighted lintels have failed and present a risk to the future stability of the wall, and to the WP8 repair works. Due to the Listed Status of the building it has not been possible to strip the internal finishes to review if there are any internal cracks / defects.

The lintels need to be replaced, which will require Temporary propping, both internally and externally. The keystone lintels will require to be taken down and reset in the correct position. A detailed method statement for reinstatement will need to be developed in tandem with a conservation masonry specialist.

WP8 works are proposed to be undertaken on these windows, and these lintels present a risk to workers, as the lintels are likely to be precarious. Further, if the lintels are left for a future Phase, there will be internal works required, which will disturb the finish of WP8.

BKPL recommend that remedial works on these lintels are brought forward, out of the Phase 2 packages, and into WP8.

In the meantime, we strongly recommend that temporary props are installed to the window heads to prevent any further movement and relieve any load on the window frames.