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**SUMMARY REPORT ON INITIAL INVESTIGATION OF CHARTIST
MOSAIC - NEWPORT**

Object: Chartist Mosaic
Dimensions: 124m², W 35.0m x H 4.0m
Location: John Frost Square Underpass, Newport



Outline:

The mosaic is constructed of a series of directly applied prefabricated panels which are attached to the brick wall and piers that separates the car park from the pedestrian underpass.

The explorative trials, undertaken on 2nd & 3rd September 2013 were specifically concerned with confirming and investigating the method of application, its attachment including the fixing arrangement and to ascertain the structural condition of the mosaic mural.

The following summary is based on the collected information and our recent investigation of a small section of the mural.

In order to minimize loss of original material it was decided to remove tiles/tesserae within an already disturbed section of the mosaic identified by the project team prior to commencement. This was confirmed during a 'sounding survey'.

Trials

An area of the 'mid section' of the panel was mapped on to clear acetate and photographically recorded. After an initial clean of the surface of the mosaic using a micro steam cleaner, remains of painted graffiti were removed using acetone. The mosaic surface was faced with a minimum of three layers of muslin applied with a reversible acrylic adhesive (Paraloid B72, 20% in acetone) and allowed to set.



Location of trial (green) as supplied by Mann Williams together with position of piers, (red)

The cement, 'Bal Flex' grout between the tesserae pieces within the chosen section was methodically cut out with a combination of small diamond rotary blades and fine dental tools. Once the bed and substrate were exposed, cutting saws and files were progressively worked horizontal to the plane of the panel until the section had fully detached.

The removed section was placed on a supporting plywood board and removed from site for safe storage at Cliveden Conservation's workshop.

An additional section of tiles were recorded and removed to confirm the fixing method used by the artist. These tiles were removed individually and will also be stored until required.

Construction

The prefabricated design is attached with a two-part proprietary elastomeric tile adhesive 'Bal Flex' to its primary expanded metal lath, (E.M.L) aluminium support.

The adhesive depth is relative to the depth of designs surface relief and ranges from approximately 8mm – 25mm. An additional adhesive layer was applied to the brick and concrete substrate, anchored to the cement piers and brick walls with 'Hilti' fasteners (Ø25mm washer with studs). The concrete piers appear to have been rendered over with a cement bound mortar prior to application of the 'Bal Flex'. Both the bedding adhesive and fixing arrangement examined was found to be structurally stable and in excellent condition, with the exception of the section where it was de-bonding. There were no fixings to hold the EML to the piers, which may be the cause of the detachment in the trial area.

The mural was found to be extremely well adhered to the porous brick surface and removal placed much tension on the individual tesserae.

The section crossing the cement pier could be successfully removed.

In the trial area most of the de-bonding was between the cement render over the piers and the piers themselves. Detachment in the upper right section occurred at the back of the ceramic tiles (this is where the 'Bal Flex' was well bonded to the brickwork).

Removal Phase

The mosaic should be dismantled in line with the document drawn up in conjunction with Mann Williams. Strips of tesserae/tiles would be removed allowing sections of the mosaic together with their brick backing panels to be framed and dismantled. The remaining sections of decoration covering the piers would then be faced up and removed as separate sections from the pier.

Recommendations

The trials established that structurally the remaining mural is in reasonable condition with very little loss or movement.

The rubber based adhesive remains effective and therefore we would consider the structural integrity of the panels to be adequate and viable for removal.

With the appropriate frame and insulated housing it is feasible to dismantle the mosaic in individual panels.

As is often the case with mosaic conservation limited areas will require additional restoration, an example being the removal of the tesserae within the joint lines of each panel. However given the current surface condition we do not anticipate an excess of c.15% of loss which would require tesserae replacement or restoration.

Conclusion:

It would be possible to remove the Chartist mosaic from the underpass as large panels to include their brick backing.

The decoration over the concrete piers would be treated separately, faced and removed from the rendered background.

The mosaic could then be re-erected with its brick skin on an alternative site.

Should the scale and weight of the panels restrict its display options, it would be necessary to carry out a further labour intensive process to remove the brick backing from the faced mosaic. There would be various major cost implications associated with this option as it would initially require the panels to be faced and strengthened on the surface allowing the bricks to be ground or sawn from the rear of each section. This process has been undertaken on a smaller scale with brick or concrete backing removed using either a large scale 'secondary saw' or the individual grinding of bricks from the rear of each major section.

With the brick backing removed it would then be possible to re-mount the mosaic onto a lightweight backing and frame. The backing panels used in

previous mosaics are a honeycomb construction developed for the aeronautical industry however their size may require multiple panels to be joined and framed to accommodate the scale of each mosaic panel.

Budget outline for panel re-backing:

- Structural design engineer input
- Structural facing of panels (x5)
- Grinding/removal of brick backing (x5)
- Cost of lightweight backing panels and structural adhesive
- Cost of framing each panel
- Cost of constructing new panels

Budget cost:

c. £250,000.00

This cost should be treated as a budget estimate to be 'worked up' if required.

PHOTOGRAPHIC RECORD:



Trial area before commencement of work



Trial section faced with muslin and timber stiffeners



Trial area with tiles removed from brick facing leaving E.M.L. attached



Trial area section removed from concrete pier



Section of tesserae dismantled and removed with facing muslin, loss of tesserae due to strength of Bal Flex adhesive



Example of 'Hilti' fixing of E.M.L. to brickwork