

3.1.2 Protection

- i) The need for temporary protection should be assessed prior to undertaking any task on site.
- ii) All investigations and survey work have the potential to damage floor coverings, and appropriate footwear should be worn, and protection should be installed as necessary.
- iii) Method statements for temporary access systems should account for the need to provide protection between the equipment and historic fabric, details of this protection should be submitted along with the task method statement as outlined in section 3.2.
- iv) A photographic record of items wrapped in protection should be undertaken prior to protection being installed.
- v) Protection shall be maintained throughout the construction phase or until it is safe to remove.
- vi) Protection that encloses significant elements shall be clearly labelled to identify what is behind the protection. Before commencement of any repair works all fixed architectural features identified as being of heritage significance will be protected by the contractor to the satisfaction of the project architect and/or conservation advisor.
- vii) Prior to installing protection, ensure that the surface is free of any debris that could be caught between the historic fabric and protection.
- viii) All protection should be non-abrasive and free of any substances.
- ix) Protection shall be fixed in place without the need for fixing into the building. Where this cannot be avoided, fixings should only go into mortar joints and should be no larger than 50% of the size of the mortar joint width.
- x) Adhesives should in no circumstances be used.
- xi) Protection should be installed not to trap moisture.
- xii) The contractor must also ensure the provision and maintenance of special protective measures throughout the implementation of the contract (such as boarding, screens and barriers) to keep the site location and building secure, and to prevent damage to, or theft of, significant component items. The adopted means of protection shall be self-supporting and avoid fixtures directly into the building's fabric. In particular, the protection fixtures should avoid thin mortar joints, facing stone or window frames, joinery, cornices, skirting, tiled or other defined architectural features.
- xiii) Ensure that any areas to be opened up to implement the required repairs (i.e. window openings or roof voids) are protected from wind and if necessary, temporarily weatherproofed to prevent further degrading of existing fabric prior to remedial repairs.
- xiv) Works to the roof will have to be co-ordinated with the installation of temporary protection as necessary to prevent water ingress. Details are to be submitted to the project architect for confirmation.

- xv) All scaffolding is to be designed and erected in line with section 3.2 and 3.5.
- xvi) The scaffolding contractor should define the proposed protection measures in accordance with ensuring that protection is non-abrasive, malleable to mould around the building, and should not place any pressure on the building fabric or trap moisture / debris.
- xvii) Protection of all identified features shall also be maintained throughout the construction phase or until it is safe to remove.

3.1.4 Access scaffolding

- i) To avoid any damage to historic fabric, the erection and support of necessary scaffolding to enable the implementation of the repair works must be carefully detailed.
- ii) The design of all scaffolding will be the responsibility of the scaffolding contractor, subject to the below Conservation Strategy requirements and in accordance with the recommendations of BS 5973: 1990 "Code of Practice for access and Working Scaffold and special scaffold staircases in Steel" or as updated. Compliance with the various Acts and regulations listed in BS 5973 is the responsibility of the Contractor. The following minimum requirements will be met. Compliance with all aspects of Health and Safety during erection, using and dismantling is the responsibility of the Contractor.
- iii) The scaffolding contractor's task method statement will include proposals which include clear drawings and structural calculations in duplicate sufficient to prove the stability of the proposed temporary structures in accordance with BS 5973: 1990. Drawings will be provided to the project architect, structural engineer, conservation consultant.
- iv) These drawings will clearly indicate positions and methodology where any scaffold is to be tied back to the fabric of the building. Fixings should either align with previous fixing holes or where cementitious repairs have been undertaken. Alternatively, the removal of windows to enable fixings to go into the window jamb or floor slabs may be developed. Where it is necessary to brace the scaffold from the building's structural frame then timber packing of a minimum thickness of 25mm is to be placed between the scaffolding and the masonry / historic fabric.
- v) The ends of ALL scaffold tubes are to be protected with plastic caps which are to be fitted prior to delivery to site. Where it is necessary to cut scaffold tubes during erection the end is to be re-capped.
- vi) Where it is necessary to brace scaffold through window or door openings the existing finishes are to be protected with 25mm thick timber packers both internally and externally. The opening is to be boarded up with access only for the scaffold tubes.
- vii) Protection. All vulnerable historic surfaces are to be suitably protected to prevent the scaffold damaging existing external and internal finishes. Where internal scaffold is to be erected full protection will be required under all scaffolding except with prior written consent. Refer to section 3.3 for further details.
- viii) Ensure any architectural features or areas prone to damage are suitably protected. Where protection measures are considered inadequate the Contractor will at his own expense provide additional protection as directed by the Architect at the Contractor's own expense. Refer to section 3.3 for further details.

3.2.3 Mortar (including cement)

- i) Bedding mortars require different characteristics to the mortar outlined below due to the requirement of compressive strength. Where bedding mortar is being replaced the contractor is to consult the conservation consultant and structural engineer.
- ii) Pointing mortars are a sacrificial element of the façade and enable the masonry and brick to survive for future generations by drawing moisture and salt from the wall.
- iii) The mortar needs to be robust enough to be able to carbonate through exposure to the weather, whilst not impeding its functionality.
- iv) All mortars should follow the standards outlined in section 3.8 and samples to be produced in section 3.7.
- v) Mortar to the masonry will need to utilize a fine aggregate due to the thin joints and also be a close as possible colour match to the limestone as is the existing mortar unlike the patch cement pointing that has been used to isolated areas.



Fig. 5: The fine joints of the Portland stone cladding has a cream coloured mortar with very little aggregate, most likely a lime putty mortar with a fine aggregate.

3.2.4 Stone masonry

- i) **The granite cladding** to ground floor has only minor damage and the finish is generally acceptable.
- ii) The cladding has a polished finish and cleaning with fresh water and a non-abrasive cloth will be sufficient to remove dirt. Where heavy soiling and graffiti are present refer to section 3.35 and 3.36.
- iii) No other methods are to be utilised before prior consent by the project architect and / or conservation consultant.
- iv) Where cracking has occurred, this should be filled with a lime-based mortar to match the cladding joints. The contractor is to provide details of the mortar to be used to the project architect and / or the conservation consultant.
- v) Where minor impact damage has occurred, mortar repairs should be undertaken, with the contractor providing samples as per section 3.7.
- vi) Where redundant fixings survive, these should be removed, and a mortar repair undertaken as above.
- vii) Where cladding is beyond repair, new pieces of granite are to be sourced to match the existing.



Fig. 6: View of the granite cladding to the entrance on High Street, with graffiti and soiling.



Fig. 7: View of the Portland limestone cladding to Bridgewater Place which has heavy soiling.

- viii) **The limestone masonry and cladding** to the building show areas of soiling / staining, graffiti, redundant fixings, inappropriate mortar repairs, minor damage, minor cracking and erosion.
- ix) Where soiling has occurred, the use of fresh water and a non-abrasive cloth should be firstly utilised, being careful not to saturate the stone. Where soiling has built up, it may be appropriate to use a steam cleaning system such as DOFF or JOSS. Prior to starting, trials should be carried out first as per section 3.7 and 3.28. Any cleaning should not be carried out when night-time temperatures are below 5°C within the following week.
- x) Trials of graffiti removal should be undertaken in line with section 3.7.
- xi) Chemical or abrasive cleaning methods are not suitable.
- xii) Where possible, redundant fixings should be removed, and a lime mortar repair undertaken as per section 3.7.
- xiii) Cement repairs have been carried out to the limestone where damage has occurred, or fixings have already been removed. Where cement repairs can be removed without causing damage to the surrounding stone they should be removed, and a lime mortar repair undertaken as per section 3.7.
- xiv) Vegetation should be removed, and the joints re-pointed as per section 3.10.



Fig. 8: Redundant fixings will need to be removed and the holes filled with a lime-based mortar repair, unlike the previous cement based repairs that have been undertaken.

- xv) Any cracking is to be brought to the attention of the structural engineer who will keep a record of the buildings structural defects and advise on any further investigation or repairs required.
- xvi) Cracks should be pointed using a lime mortar as per the cladding joints and as per section 3.10.
- xvii) Where minor damage or erosion has occurred, mortar repairs may be undertaken using a lime mortar as per section 3.7.
- xviii) Where damage or erosion has occurred that impacts between 10 and 50% of the masonry / cladding unit, a stone indent repair should be undertaken. Stone indents should be undertaken using Portland stone and a sample of workmanship undertaken as per section 3.7.
- xix) Where damage has occurred to over 50% of the masonry / cladding unit it may be acceptable to replace the whole masonry / cladding unit. Stone replacement should be undertaken using Portland stone and a sample of workmanship undertaken as per section 3.7.
- xx) Where the surface of the stone has become friable, the use of a shelter coat may be appropriate, samples should be provided as per section 3.7.
- xxi) Where movement has occurred to the masonry parapet and coping, this shall be brought to the attention of the structural engineer and conservation consultant. Repairs may require deep filling of voids where the masonry is stable and any fixings to be replaced, as necessary. Iron or steel staple fixings that have corroded should be removed and replaced with stainless steel fixings to be confirmed by the structural engineer. Where masonry is not stable the masonry

will require lifting and re-setting. In such a circumstance further investigation and design of repairs will need to be detailed by the structural engineer and reviewed by the conservation consultant.

- xxii) Building signage should be removed where redundant and holes filled with a lime-based mortar repair as indicated above.
- xxiii) Redundant fixtures and fittings should only be removed where damage can be avoided to the stone. Where fixings are removed, these holes should be filled using a mortar repair as described above. Where fixings are not showing signs of corrosion and can't be removed easily, they should be retained, and the area made watertight by filling all holes with a lime-based mortar to match the pointing mortar. Where fixings are showing sign of corrosion but are difficult to remove, consult the project architect and / or conservation consultant to inspect and instruct whether the fixing should be removed.



Fig. 9: The use of cement mortar repairs is inappropriate and where possible will need to be removed and replaced with a lime based mortar repair.