



REPAIR METHODOLOGY

at The Weighbridge, Old Road,
Chippenham SN15 1HW

PROJECT: 4580

REVISION: A

DATE: AUGUST 2025

1. INTRODUCTION

This method statement details the repair and re-roofing work to The Weighbridge at Old Road, Chippenham SN15 1HW. It supports a listed building application to further expand on the detail of the proposals.

Alongside the existing and proposed drawings, reference should also be made to the following reports:

1. Design & Access Statement
2. WBC Group's Structural Engineering Report and Condition Assessment Report

2. MATERIALS

All materials to be used in the repair are to match the existing for type, size, texture, and colour in a pre-weathered or pre-aged state. The repairs will naturally weather over time to blend in with the historic fabric of the building, rather than attempt to falsify the age of the repair.

The existing materials are:

External walls (stone): Limestone and sandstone of varying colors.

External walls (timber): Oak timber cladding painted.

External walls (metal): Corrugated metal sheet.

Quoins: Ashlar Oolitic Bath limestone

Cills and chimney stacks: Red/brown brick

Roof: Slate and Double roman clay tiles.

Timber rafters: Oak

Internal walls: Lath and plaster on hardwood timber.

Plasterboard and gypsum plaster on hardwood timber.

Ceilings: Lath and plaster on hardwood timber.

Plasterboard and gypsum plaster on hardwood timber.

The proposed materials are:

External walls: Purbeck traditional blend (Quarry: Lovell Purbeck).

External walls (timber): Oak timber cladding painted.

Quoins: Ashlar Oolitic Bath limestone ('Hartham Park' Bath Stone).

Roof: Cwt-y-Bugail dark blue grey Welsh slate.

Timber rafters: Oak.

Internal walls: Lath and plaster on hardwood timber.

Ceilings: Lath and plaster on hardwood timber.

3. RECORDING

Photographic record:

An itemised photographic survey of areas that are to be worked on is to be carried out before, during and after the works.

Photographs are to be both contextual and show the detail of works areas. This is to include photographs of the front/side elevations, supporting roof area, and the party wall. This record is to be submitted to the client at the conclusion of the work.

4. DETAILED METHODOLOGY

Where possible, works have been outlined within the categories that follow. Work has been shown within detailed drawings, but not all work, i.e. every open joint or eroded piece of stone, is drawn. The contractor is to use the repairs shown as guidance, extrapolate the drawn information to area that could not be assessed or are not shown, and take account of the implications of the written information given within this document.

Although the principle works are for the repair works to the roof, timber cladding and stonework, this scheme takes the opportunity to also clean and repair areas which are usually inaccessible or difficult to maintain.



5. CLEANING

Removing biological growth:

Biological growth, including moss, algae and lichen growth is to be brushed off from area around downpipes, flaunching, quoins, coping stones, and areas where stonework repairs (both piecing in and plastic mortar) are to be undertaken.

The careful use of a soft bristle brush will leave the pores of the stone intact and no more susceptible to an increase rate of future erosion by growth, pollution or weathering. Stonework should be dry for a week before brushing off surface deposits.

If the algae is found to be particularly difficult to remove, then warm water and a soft brush can be used to targeted areas. Nebula sprays and/or chemicals are not be used. After the 'mechanical' removal of the biological growth has been undertaken, the whole surface should be wet scrubbed and rinsed clean, albeit avoiding prolonged water penetration into cracks.



6. EXTERNAL STONEWALL REPAIRS

Plastic mortar repairs:

Wall surfaces must be clear of all growth and other organic matter, loose material, dust and dirt in order to achieve a good bond between the lime and its substrate (see section 5).

Where plastic mortar repairs are to be undertaken, the substrate should be dampened by successive wetting in advance of the repair work to avoid excessive suction of water out of the mortar and so that moisture can be absorbed back into the mortar from the surface. Care is to be taken to not excessively wet the wall surface where iron cramps are suspected to exist (for example the latch to the first floor door on the south west elevation).

Different parts of the structures will require different amounts of wetting and this is to be anticipated; sheltered surfaces that are south facing will be drier than exposed east facing elevation, whilst the areas close to the ground may be constantly damp. Matured lime putty is to be used for all lime-based plastic repair work. It should be made up well in advance of use 'knocked up'. Samples of the mortar to be used for the repairs should be made up in advance for selection, with variations made up and based on Bath stone dust, Cotswold stone dust and based on Mike Wye or Ty Mawr's analysis of the existing mortar.

Each application of the lime mixture will shrink slightly as it dries. Before it becomes solid, the plastic repair is to be consolidated by applying pressure, pressing and smoothing it into the void that it is filling. Consolidation is to take place at the end of each workday when work can then be re-dampened, protected overnight (with hessian, itself subsequently overlain with bubble wrap or polythene sheeting) and the condition of repairs checked the following morning. It is especially important that plastic mortar repairs are allowed to dry slowly so that the lime particles are not pulled to the surface; if the mortar dries out too fast this will result in a weak interior where the mortar should adhere to the underlying material, causing the repair to fail within a short timeframe. Where the depth of erosion to be filled is greater than 20mm, the plastic repair mortar is to be applied in successive layers.

Where mortar is applied it is to be finely controlled so that it does not smear onto adjacent surfaces. Repairs are to be applied to reflect the shape, form and texture of the stone to which they are applied. Where repairs are applied to mouldings of other vulnerable areas, ceramic reinforcement should be used.



Repointing:

All fungus, lichen or plant growth is to be removed before repointing can take place.

Working from the top of the wall downwards, any failed (i.e. cracked or missing) mortar joints are to be raked out to a depth of at least 20mm to give a sufficient key. Chisels, fine blades, hooks or plugging chisels can be used, but on no account shall power tools be used.

On completion of the loose mortar removal, the wall is to be cleaned down with a soft bristle brush to remove dust and debris; power washers are not to be used, nor is the wall to be scrubbed clean. Before re-pointing areas, the wall is to be pre-wetted for immediate filling. Repointing is to be carried out from the top of the wall working downwards. The new mortar is to be pressed firmly into the joint and not spread onto the face of the stonework. The mortar is to be tamped for its full depth.

Mortar for re-bedding is to be based on a visual analysis of the existing, i.e. the re-setting of stones is to be carried out with appropriate mortar to match the existing mortar found within each structure. It is anticipated that the mixture will use either Bath stone or Cotswold stone dust. Analysis of mortar samples is to be obtained from Mike Wye or Ty-Mawr lime and their recommended pointing mixture is to be trialled.

When creating a pointing mixture 'from scratch', then it is anticipated that the mixture will be made of 1-part lime putty, 2-parts Wareham washed sand and 1-part stone dust (confirmed

following analysis). Joints are to be cleaned and wetted before the pointing work is carried out. Joints shall be carefully filled in layers no more than 25mm deep, with subsequent layers applied once the layer beneath has dried, up to the wall face. The repointing mortar should be weaker than the underlying layer. Areas of lime pointing will need to be protected whilst curing.

Pointing should be lightly sprayed to prevent the mixture from drying too quickly and cracking. The mortar will need to retain moisture for the first few days and will therefore need to be covered by Hessian and polythene or bubble-wrap sheeted panels placed against the face of new work. Repointing should not take place if the temperature is at 7°C and falling or 5°C and rising, or if the temperature is expected to drop below 5°C by the time the mortar has achieved a set (typically several days after the work has taken place). If the temperature is below 8°C then bubble-wrap is to be used rather than a polythene sheet to afford the repointing works insulation.

In wet conditions the wall is to be protected from the rain; polythene sheets are to direct rainwater clear of the work taking place. The mortar is to be brushed back after the initial set has taken place with a soft brush wielded towards the joint so as to lift off excess mortar. Leave a flush joint within ashlar stone details or walling. Where the width of the joint to be re-pointed exceeds 25mm across it must be infilled with a natural stone slip; the

stone used is to match the surrounding wall material.

Friable stone:

Friable surfaces are to be consolidated with two or three applications of an adhesive lime mix which has been thinned down to the consistency of milk.

Piecing in:

It is not anticipated that stone placement will be required, however, if necessary the following procedure should be followed:

Sections of stone identified for replacement should be cut out and replaced using new stone that is closely matched to the original. Stone should be replaced to a minimum of 150mm or to a full depth if the original stone is thinner. All stone should be fully bedded (i.e. top, bottom, sides and rear face with no voids) with lime mortar to match the existing. Stainless steel fixing dowels can be used where deemed necessary such as with thin sections.

Where new stone is required for projections i.e. cills, the entire decayed length of stone (but not necessarily the whole piece of stone) and its recess into the wall is to be renewed. This is because the stone projects and is prone to decay and weathering; the risk of small stone projections fracturing and falling must be avoided. The new stone is to be cut to the original (and not the eroded) profile of the stone.



7. EXTERNAL TIMBER FRAME AND ROOF TIMBER REPAIRS

The Structural Engineer's Report conducted by WBC Group highlights the existing condition and suggests remedial works of the timber frame and roof timber. A true assessment of the frame, however, will only be possible once parts of the slipped/broken timber cladding are removed, exposing the frame and thus a proper assessment undertaken. It is proposed then to carefully remove the timber cladding that has slipped or been broken, for this assessment to occur.

A full roof strip is proposed in order to repair the roof structure, valley rafter, beams and external stud work. Major repairs include within:

Room 07

The truss of 5 has failed, causing roof deformation and timber beam deflection of the bressummer beam. This truss and the deflected purlins to either side require repair or replacement. The decayed end of the timber truss is proposed to be repaired using a reinforcement repair method using stainless steel. This seeks to minimise the loss of the historic fabric. This includes full strength butt weld at splice, 100x100x8 RSA bearing cleat 200 long welded to plate each face, 10mm flitch plates and 100x65x8 RSA cleat x 125 long welded to plate. Slipped trusses and support struts on neighbouring trusses are proposed to be relocated (refer to SE details).

The timber stud wall beneath truss 5, requires reforming due to significant water ingress which has lead to deterioration and

decay. This requires the removal of the deteriorated timber cut back 150mm back from any decay, and new oak (to match the existing beam size) to be spliced in, with a minimum 3 times the width of the beam and 3no. M8 stainless steel dowels to be connected to the members (refer to SE details).

The timbers that support the guttering that runs along the north elevation, is defective including the sarking board and the timber rafters that this supports. The existing valley rafter is to be reviewed and the decayed timber removed along the length. Again, this requires the removal of the deteriorated timber cut back 150mm back from any decay, and new oak (to match the existing beam size) to be spliced in, with a minimum 3 times the width of the beam and 3no. M8 stainless steel dowels to be connected to the members (refer to SE details). Once the timbers are repaired, the lead flashing should be redressed with falls improved to improve water run off. (see 8.0 Roof Coverings leadwork)

Four of the timber rafters on the west side of the building require splice/sistering due to the section losses (refer to SE details).

The bressummer beams over the timber windows require repair, due to section loss. This requires the removal of the deteriorated timber cut back 150mm back from any decay, and new oak (to match the existing beam size) to

be spliced in, with a minimum 3 times width of the beam and 3no. M8 stainless steel dowels to be connected to the members (refer to SE details).

The bressummer beam between ground and first floor requires replacement. A new oak beam is proposed to be installed, spliced into the existing beam as per SE details and specification.

Room 11

The timber beam has deflected and will require replacement. This will only be possible following the removal of the double roman slates and propping of the timber rafters. A new oak beam is proposed to be installed, spliced into the existing beam as per WBC's details. The ends of the joists will need to be reviewed following removal of the bressummer beam.

Four timber posts which bare onto the flagstone floor have section loss. Refer to Se's details for splice column repairs and proposed treatment to the bottom 150m of the column.

Timber cladding

All existing decayed timber cladding is proposed to be removed. If the timber battens behind the cladding is also deteriorated this should also be removed or timber cut back 150mm back from any decay. New softwood timber battens should then be spliced in with a minimum 3 times width of the batten. New timber cladding should be installed with the size and lapping to match the original design.



8. TIMBER WINDOWS AND DOORS

A full assessment of the windows has not been possible as the windows have been boarded up for security purposes. Reviewing the windows internally (where possible) and historic images of the windows it is considered that all will require repair, to extend their lifespan and are functional for a potential tenant. Where possible window repairs should be undertaken in-situ. When not possible all windows are to be repaired either one at a time or labelled correctly so that they are re-installed in the correct location. Similarly, if dismantling is required, marking and recording of each component part must be undertaken.

Open joints: A specialist window manufacturer must assess whether there is any structural deformation, opening of joints of any windows, these will need to be stabilised and the method of which will need to be agreed with the Conservation Officer (i.e. cramping, gluing, re-wedging or pinning). If decayed joints are found then, the window should be carefully dismantled and defective members repaired with new hardwood pieced-in.

Sash window: The sash window itself is to be removed for repair works, sash boxes to remain in place and work to be carried out in-situ unless repairs are needed to the sash boxes themselves.

Repairs: Assess areas of rot and decay and report whether areas can be filled or need to be repaired with new timber/splice repair.

Resin repair: Small areas of decay to be made good with fillers made from wood dust and 2-part epoxy resin. Cut away the decayed wood but not through to sound wood, weak areas to be

strengthened with a resin consolidant. Once decay is removed and consolidant placed fill with filler combined with wood dust.

Splice Repair: Cut out rotten timber, splice in timber inserts shaped to obtain maximum strength and to match existing profile. Timber to be a similar species and moisture content to existing windows. The new timber must be free of defects including shakes, resin pockets, knots, or sap wood. Softwood be double impregnated with preservative. Repairs must be designed and installed to direct water to the outer face and not pool, lie or enter the joint.

Cills: New cills where needed are to be installed using Oak and are to be thoroughly primed all round and painted with a drip incorporated even if it didn't exist before, this is to prolong the life of the whole window and prevent ingress of water.

Painting : All new decoration work to be carried out in workshop conditions, with glazing removed and set aside for re-installation. Old putty where it exists to be removed and areas of insertion cleaned fully. Any areas of glass that have been over painted to be carefully cleaned ready for insertion into refurbished frames.

Rub down painted timber/all parts of the window, all new areas of putty must be fully cured before redecoration. Apply one undercoat and two coats of white exterior eggshell paint (must not be plastic). Example product:

<https://www.littlegreene.com/paint/finishes/exterior-paint-finishes/intelligent-exterior-eggshell>

Ironmongery: Original ironmongery such as sash lifts and sash fasteners are to be retained and restored where possible, if fittings are missing or beyond repairs then reproduction fittings are to be used, the choice of these fittings must be cleared with the Conservation Officer.

The sash mechanisms to be overhauled repaired and replaced where necessary, if pulleys are not repairable even after being fully cleaned and refurbished the original ones are to be kept and are the property of the owners. All new cords are to be waxed and taut.

Thermal Upgrades: To help improve the energy targets and to make these spaces more comfortable for occupants we are proposing to improve draughtproofing on all windows.

Top and bottom of sashes: Compression seals are to be installed that are made from silicone via a carrier strip.

Slide section: Wiper brush seals are to be installed and are to be pinned not glued.

Decoration: All coatings must be applied to a clean, dry surface. Remove areas of loose paint and any rust, deal with areas of decay as above, do not use heat strippers, lightly sand surfaces, clean areas with sugar soap, leave to fully dry. Apply primer, undercoat and 2 finishing coats all to manufacturers recommendations. Ensure all new putty is fully cured before any decorations.



9. ROOF COVERINGS

Leadwork:

The existing leadwork is understood to be cracked and damaged, flashband has been used as a temporary repair, subsequently failing. As a result, the following areas are proposed to have their existing leadwork repaired, or removed and replaced:

- Lead detailing around the base of the chimney stack.
- Replacement of the leadwork between the abutment between the lower roof and the main building.
- Replacement of the leadwork, following the reformation of the valley gutter/coped party wall.

All leadwork repairs are to be in accordance with the Lead Development Association's 'Lead Development Handbook—The Complete Manual'. All leadwork is to be cleaned using Midland Lead Cleaning Gel, using a nylon brush to apply the gel. Once clean is to have 1 coat of patination oil applied.

Slates:

The existing roof slates are to be reused if their condition is satisfactory. If possible, the existing slates should be used on the front elevation and any replacement slates used on the rear. New slates should be akin to the original design i.e. in size, shape, dimension and colour, these are expected to be new Welsh Heather Blue (Penrhyn).

The site is within the 'severe exposure' area for annual driving rain index. As such, minimum headlaps and slate weights must

be considered with specialist manufacturer's recommendations dependant on the roof pitch and slate size, with wind calculations in accordance with BS5534 and BSEN1991.

New clay flue ventilator chimney pots:

If the building has an open chimney pot., then a new clay flue ventilation chimney pot should be installed on the open elements. The new pots are to match existing, using a *'Redbank Clay Bakers Hat Flue Ventilator in Red/Terracotta'* sized appropriately for each pot.

Coping stones:

a. Cleaning

Removing biological growth: Biological growth, including moss, algae and lichen growth is to be brushed off from the coping stones, and areas where stonework repairs (both piecing in and plastic mortar) are to be undertaken. The careful use of a soft bristle brush will leave the pores of the stone intact and no more susceptible to an increase rate of future erosion by growth, pollution or weathering. Stonework should be dry for a week before brushing off surface deposits. If the algae is found to be particularly difficult to remove, then warm water and a soft brush can be used to targeted areas. Nebula sprays and/or chemicals are not be used. After the mechanical removal of the biological growth has been undertaken, the whole surface should be wet scrubbed and rinsed clean, albeit avoiding prolonged water penetration into cracks.

b. Lifting

Coping stones may require re-bedding, repair or replacement. A true assessment of the state of repair of the existing copingstones, will only be made possible following the installation of scaffolding. If the coping stones are beyond the state of repair, new stone copings that closely match the original, that is natural weathered limestone in a rough/hand cut edge are to be installed on a bed of lime based mortar.

Ridge tiles:

Stone ridge tiles are to be replaced with new stone ridge and 'back' bedded on a base of lime mortar. No mortar should show along the ridge line.



10. INTERNAL WALLS

Solid wall background: Walls to be repaired only where needed. Clean back to the substrate and the edges of the area to be repaired are to be slightly undercut, using a knife to help provide a key for the repair. Damp thoroughly, press Mike Wye or Ty Mawr lime mortar into the backing, introduce hair into the mix if area is large. Lime mortar to be finished a few millimeters below the finished level, scratch key to surface and allow to dry. Once dry, dampen surface and apply fine setting stuff, the edges are not to be feathered but butted up against the existing plaster. The repair can be wetted and polished to a smooth surface or to match existing, using a trowel. Paint with vapour permeable paint or limewash compatible with existing, Mike Wye or Ty Mawr.

Plaster cracks, delamination and crumbling: Walls where there are repairs needed to crack's, delamination, and loose areas. For minor cracks, use proprietary Ty Mawr interior filler with whiting, decorate once dry. Narrow cracks are to be filled using matching Mike Wye or Ty Mawr lime plaster, the crack is to be widened first to provide a good key, use bridging mesh. Crumbling areas from water ingress, areas of plaster removal to be agreed with the conservation officer. Retain as much of the existing historic plaster as possible. Replacement where justified and agreed, should comprise the same material, i.e. Mike Wye or Ty Mawr Internal Lime Plaster, and number of coats. Use adequate haired reinforcement on flexible backgrounds. Patch repairs - Exposed edges of the existing plaster to be treated with lime mortar. Paint Finish - Vapour permeable paint, limewash or soft distemper, Mike Wye or Ty Mawr.

Lath repairs and new work to internal studwork and ceilings: Walls to be carefully inspected to see if the plaster is still keyed to the laths to make sure the situation hasn't changed from the time of writing this report. Ceilings to be inspected from above by careful (and set aside) removal of floorboards, dust laden areas to be removed gently by hand and soft brushes or vacuumed carefully.

Plaster missing/exposed laths: Areas of missing laths to be replaced with Seasoned riven Oak or Chestnut unless conservation request a like for like replacement. All fixed with galvanized Lath nails. Existing laths being retained should be thoroughly cleaned with all loose plaster brushed off.

The spacing's of the new Laths should be a fingers width apart/7-9mm and should be staggered every 12th/ lath. Ends should be spaced 3mm apart.

Dampen the laths with water the day before application and again a few hours before so that they do not swell after plastering. Haired reinforcement to be added to any pre-mixed lime plasters before use for ceiling areas and areas where there will be some flexibility in the structure, or where it exists already.

First Coat: Apply in a diagonal direction to the laths ensuring the lime plaster pushes through the gaps in the lath fully so that a nib forms on the other side. The coverage should be approximately 8mm. Other work likely to cause vibrations must not be carried out until the first coat has set. This coat must be well scratched once the plaster has set, but while it is still green with a diamond pattern 45 degrees to the laths.

Second Coat: A floating coat will add approximately 10-12mm thickness to the first coat, scratch while still green with a nail float, this coat will be the same product as the first coat.

Final Coat: A thin coat of skim fine lime plaster that is no more than 3mm thick.

Setting times: Adequate time to be left between coats usually about 1 week.

Decoration: Vapour permeable paint.

Preparation of retained plaster for decoration: The use of wet cleaning is discouraged, areas where water ingress has damaged the plaster this is to be repaired as above, areas of mould growth should be allowed to dry out using heat and ventilation. Once dry the surface is to be dusted and vacuumed. Take care when emptying vacuum cleaners to prevent the dispersal of dust. Do not use detergents or disinfectants containing chlorine, or any products containing QAC's, or heat or steam devices. The use of alcohol is suitable as is detergent and water (not for plaster of Paris/i.e. Architectural Mouldings).

11. INTERNAL JOINERY

Skirtings & Architrave:

Repair: in-situ repairs to be undertaken to damaged skirtings and architraves. Damaged area to be carefully removed using a chisel, brush away debris to leave a clean surface. Timber resin repair used and moulded to the shape of the board. Sand in readiness for decoration.

Replacement: new skirting board and architraves required to the ground floor, new partitions and areas of overboarding to match existing. Depth of architrave to suit site conditions.

Decoration: Rub down, fill and prime as necessary before decoration of:

Walls: one mist coat and two full coats of vapour permeable emulsion.

Joinery: one undercoat and two full coats of satinwood paint. Colours to be agreed with Client and Conservation Officer.

12. CONTACTS

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REVISIONS

A. 2025.12.18—Amended following Rapley's comments (MM)