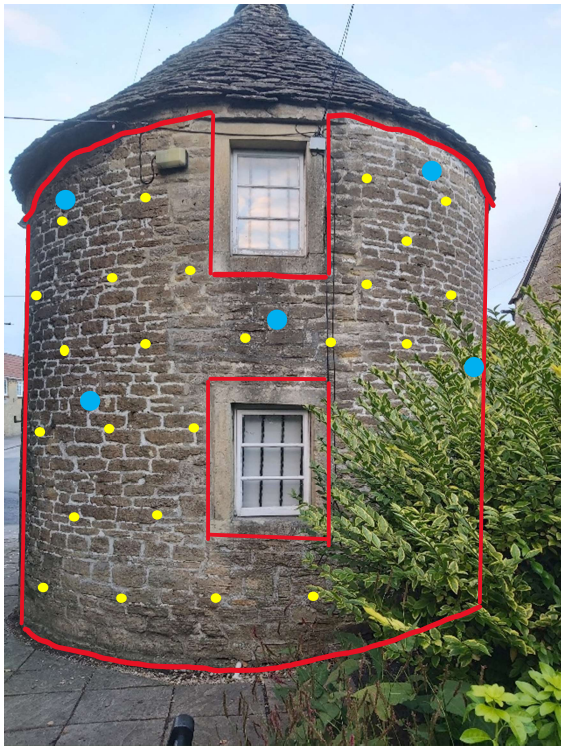
SANDRIDGE
STONE

The Roundhouse, Church Street, Melksham

View from NW



View from SW



View from NE



View from W



Cleaning

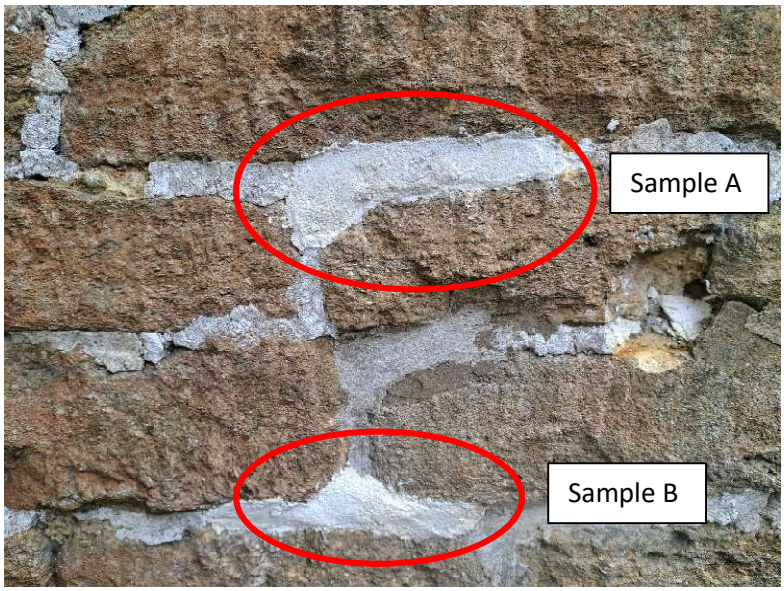
Prior to the commencement of the external stone restoration work, the walls and dressed stone will be cleaned using the Thermatech specialist stone cleaning system. This industry-leading superheated water spray equipment cleans the stone without the need for high pressure, which can cause long-term damage to the matrix.

Repointing

It is intended that the areas bounded by the red lines , which equates to ALL of the external rubble-stone walling, will be repointed. This will give both visual durability uniformity of the building and will also provide access for the ties and grouting, which would otherwise require substantial spot-repointing after completion.

The joints will be raked out to twice the depth of their width and repointed with a lime-putty based mortar ('air-lime') that has been specially formulated for the project by lime mortar specialists Rose of Jericho using their mortar-matching service: https://roseofjericho.co.uk/consultancy/. They provided small samples of two formulations, which were applied to the wall of the roundhouse to find the best match for both colour, hardness and finish. The small sample patches can be seen on a discreet area of the wall on the west view as shown in the image below. Sample A is felt to be the best option.

Mortar samples from Rose of Jericho
(for colour & texture only: not dressed to correct surface finish)



The repointing method will be:

1. Rake out using hand-picks and light mechanical mortar-raking tools.
2. Wash out loose debris with water spray.
3. Hand trowel application of new mortar, packed tightly into the joints to fill all voids and finished proud of the surface for scraping back (NB: repointing will be done AFTER insertion of tie bars – see below)
4. Scrape back mortar to stone surface level by hand.
5. Tamp with churn brush to a traditional rubble stone mortar finish as shown below.
6. Cherish the lime mortar by regular mist spraying and covering with damp hessian to avoid cracking.

Lime mortar pointing surface finish (not for colour comparison)



Ties & reinforcement

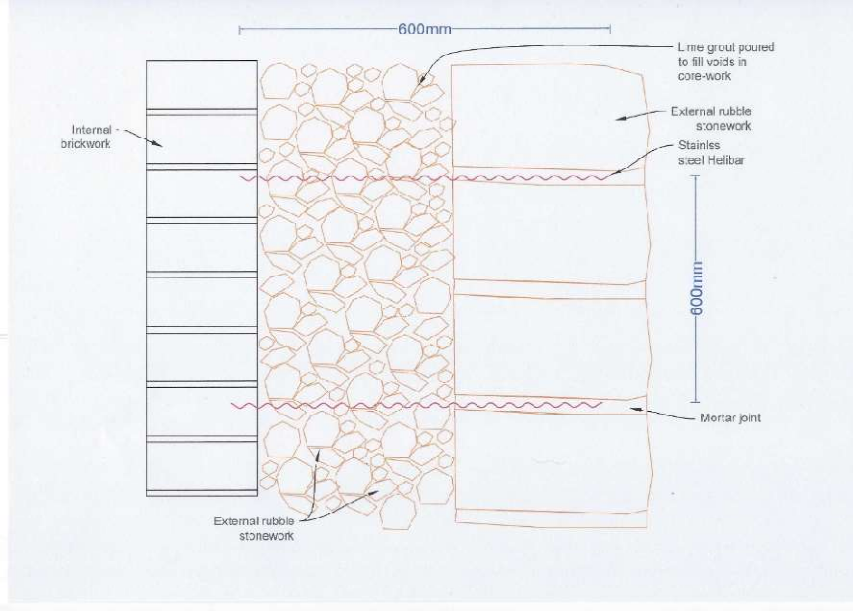
As detailed in the survey report, there is clear evidence that the core-work (small rubble & lime mortar infill between the outer & inner walling skins) is slumping, causing visible bowing of the outer walls. This slumping is due to gradual degradation of the mortar over many decades, probably accelerated by water ingress. The slumping opens up voids, which in turn further exacerbate the effect.

Arresting of the slumping will be achieved by a two-part process of consolidation:

1. Installation of horizontal Helibar (proprietary stainless- steel tie-bars) from the outer face through the core work to meet the inner brickwork. Holes will be drilled through the external mortar joints after the raking out process has be completed and bars will be inserted to the appropriate depth. Bars will be inserted at approximately 600mm centres both vertically and horizontally throughout the structure in offset rows and columns. The yellow dots ● in the photos show the indicative frequency and relative position of the bars.

2. After repointing has been completed, a series of vertically declining holes will be drilled through the outer mortar joints around the circumference of the wall at the eaves, and approximately half way down (rough indicated by the blue dots ● in the photos). A liquid grout comprised of natural hydraulic lime 5.0 (for hardness of initial set) and kiln dried sand ('silver sand') will be poured into the core-work to fill the voids, consolidate the materials and hold the tie bars in place.

Section through wall:



Horizontal Helibars will also be used to stitch across the cracks above the door lintel as indicated by the yellow lines in the photos

M7 stainless steel bar will be inserted across the lintel sides & keystone and fixed in place with styrene-free polyester resin to negate any further movement in the lintel, as indicated with the purple lines

Lime mortar repairs to dressed stonework

The window and door surrounds will be restored using traditional lime mortar mixed on site to give the closest match to the colour of the stone. Areas for repair will be carefully prepared by clear definition of the repair area and removal of any feathered edges in order to allow the mortar plug to key-in properly. Deeper repairs will include use of multiple scratch coats and a finish coat, which will be left proud and scraped back. Repairs will be regularly cherished during drying to avoid cracking.



Area requiring mortar repair



Defined and prepared for repair



Lime mortar applied



Completed repair (will dry to same colour as surrounding stone)