

Title: Kitchen Garden – Stone wall condition summary

Date: 24th August 2023

1.0 Introduction

This report summarises the findings of a site walkover undertaken at the Kitchen Garden, reviewing the existing stone walls on 11/08/2023 highlighted in Figure 1. The walkover undertaken was visual only and no intrusive works were undertaken. Only the south elevation of the walls were visible for this site walkover. It should be noted that a significant portion of the walls were covered by ivy overgrowth, and the wall condition cannot be commented on in these areas. This is an initial summary only and final repair works are subject to the removal of the ivy overgrowth on the walls, clearance of some vegetation along the north elevation and further investigative works.

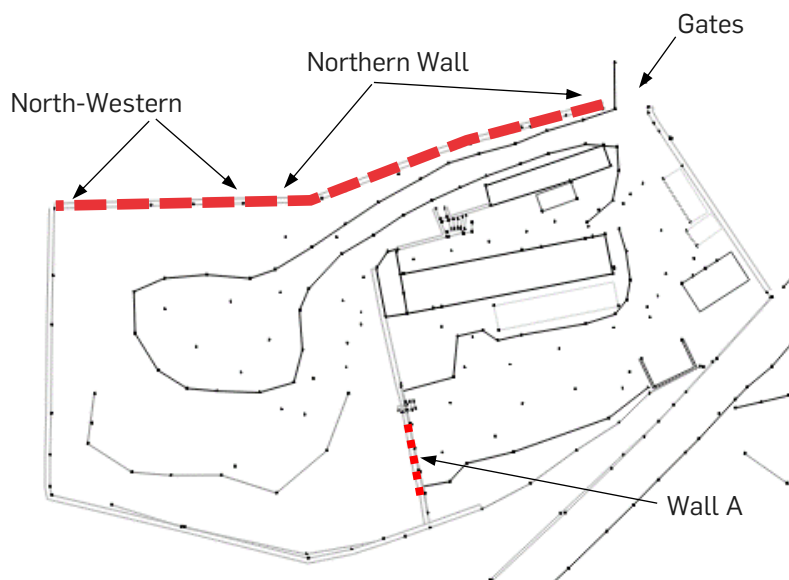


Figure 1: Existing Kitchen Garden Site Layout

2.0 Observations

Two areas of wall were reviewed during this site visit. The north wall which is separated into two sections as the North and North-west walls, and an isolated section of wall located at the south of the site, labelled Wall A for the purpose of this summary discussion. It was not possible to inspect the foundations of the walls during the site visit.

2.1 Northern wall

The north wall appears to be approx. 600mm thick with 800mm thick piers at the kitchen garden gates. At the time of this visit some clearance of vegetation along the south elevation had been carried out, this provided an opportunity to review the south elevation of the wall, heavy vegetation still existed on the north elevation of the wall.

The northern wall appears to be in reasonable condition. The wall looks visually plumb but this will need to be confirmed by a plumb survey.

The wall also appears to be retaining soil on the outside face from the Kitchen Gardens and the amount of retention will need to be confirmed by trial pits on both sides of the wall along with a level survey, once access is possible to the north face.

Instances of vegetation penetration within the wall have been observed; however, the resulting damage appears to be localized and not extensive. Refer to Figure 4.1 for an overall view of the wall and figure 4.2 for the vegetation penetrations through the wall in the Appendices.

Portions of the wall coping appears to be damaged and missing along the wall length.

There are areas of the wall that require pointing to be reinstated and there are also areas of previous cement pointing existing on the wall that we would recommend removal and a lime mortar pointing replacement applied. There could also be isolated small areas of consolidation of masonry if small stone elements have previously fallen, to improve the integrity of the wall.

2.2 North-west wall

The north-west wall is in poor condition. The wall is visibly out of plumb and leaning in a significant section (approx 7-10m length from the west corner), in the same area there appears to be an existing opening in the wall that seems to have partially collapsed. This location also appears to have large vegetation located at the top of the wall. Instances of vegetation penetrating along the rest of the wall have also been observed along with cracks in the wall.

It is anticipated that the coping of the wall is significantly damaged along this wall line due to the presence of thick root and ivy growth located at the top, over the full length. Refer to Figure 4.3 to 4.6 in the Appendices showing the overall extents of the walls, vegetation penetration through the wall, cracks and partial collapse of the opening.

For the remaining areas of the wall there will be some repointing required, existing cement pointing wasn't apparent in visible areas, but once the vegetation is removed a visual review will be carried out and a detailed condition survey and schedule of repairs developed.

2.3 Wall A

During our site visit, this section of wall was highlighted to be included as part of the initial review by Andrew Scott. This wall is located towards the south of the site, perpendicular to the existing boundary retaining wall at high level. This section of wall is approx. 3-4m length of wall, approx. 2m high, to the south is a palisade fence and to the north the wall continues at a shorter height of approx. 600-800mm high.

Based on a visual inspection on site, it appears that approx. 2m length of wall is significantly out of plumb, beyond what would be considered acceptable for a masonry wall, it would be good to carry out a plumb survey for discussions with Cadw and local authority.

At the top of the wall there is large vegetation growing from the top, this is likely causing damage and detriment to the wall.

3.0 Conclusion and Recommendations

3.1 North wall

Overall, the north wall appears to be in reasonable condition, a plumb survey is required to confirm and review stability of the wall. Ideally both north and south elevations.

We would also recommend conducting trial pits to review the existing foundations of the wall, this will provide a fuller picture of the wall stability, but also provide valuable information when reviewing the Kitchen Garden proposals and new foundations for new structures to be built adjacent to the wall and proposed ground levels.

Localised removal of large vegetation is required as part of the repair works, a temporary works approach will be developed with Andrew Scott to ensure as much of the wall remains in place, with any rebuild sections following the best practice repairs summary (Jubb document 2080-04-JUB-S-RP-00001-S2-P2).

No access was available to inspect the top of the wall, but based on the basic walk along the wall it was apparent that several coping stones were missing, and replacement and reinstatement of stones will be required along the length of the wall.

Where the existing pointing has eroded over years this will require reinstatement and areas that have previously had cement pointing applied, this will require removal and lime mortar pointing reapplied in its place. Also, some consolidation of masonry will also be required if stone pieces have fallen from the wall.

Based on the basic site walkover carried out recently there didn't appear to be any significant areas of rebuild along the North wall section, this will be confirmed once a review of the North elevation is carried out.

3.2 North-west wall

Overall, the north-west wall appears to be in poor condition. A large section of the wall is significantly out of plumb for approx. 5-8m length, at the west end of the wall. A plumb survey of the wall would be beneficial as a record and for discussions with Cadw and the local authority when discussing the extents of the rebuild due to instability concerns. There is also large vegetation growth at the top of the wall contributing to the deterioration which will require removal and an existing opening to the wall appears to have suffered some collapse. All these contributing factors result in our recommendation to rebuild the top section of the wall, approx 2m height (ideally to the location where the wall is plumb). Figures 4.4 and 4.6 show the area discussed above, the large vegetation and existing opening. Repairs done to these walls should be sympathetic with historic considerations and methods agreed before work commences, see Jubb report 2080-04-JUB-S-RP-00001-S2-P2 for more detail.

Similar to the North wall we would recommend a trial pit for the foundations of the wall (below a stable section of wall, TBC with Jubb prior to works commencing on site).

Removal of vegetation across the rest of the wall (not area of rebuild) would be required, consolidation and repointing to suit and repair wall in these areas.

No access was available to inspect the top of the wall, but based on the basic walk along the wall it was apparent that several coping stones were missing, and replacement and reinstatement of stones will be required along the length of the wall.

Similar to the North wall, any repointing works required will need to be reinstated and removal of historic cement pointing replaced with lime based mortar.

3.3 Wall A

Based on the initial visual inspection we would recommend rebuilding the section of wall out of plumb, but also carrying out further inspections behind the wall to determine if any vegetation or other effect has had an impact on the wall to reduce the chance of the wall deteriorating in the same manner in the future.

A trial pit for the footings of the wall would be useful for the associated works to the Kitchen gardens area and new building proposed adjacent to this wall.

Removal of vegetation would be required with consolidation of the masonry surrounding these areas, and a review of any existing coping to be reinstated or new coping laid on top.

3.4 Initial repair allowances

Based on what could be observed at the time of the walkover, south elevation of the North, the following allowances for costing should be made:

- Repointing allowance of 40% of the south elevation of the walls in a suitable lime mortar.
- Removal of cement pointing and replacement with lime mortar – potentially 20-25% of the south elevation of the wall surfaces
- Allowance to replace 50% of coping stones. (Coping stones were not all visible on site, replacements will likely be required, TBC pending further investigations and access for full inspection)

Similar allowances should be made for the north-west wall, with the additional rebuild requirement for a large section of the wall as described in section 3.2.

For Wall A, an allowance should be made to rebuild a 2m long, 1.5m high section of wall, with works to regrade the ground behind the wall and remove some localised vegetation if possible. Some allowance for repointing in the remaining length of the wall would also be sensible at this stage. These allowances are restricted to the short section of wall inspected on site, a full survey of the wall will be carried out.

All of the above estimations are TBC pending detailed condition survey of all elevations.

Following clearance of the vegetation obscuring inspection of the north elevations, Jubb will carry out a visual inspection of the elevation and provide an update to this report.

In conclusion, the walls require a significant amount of repair works and consolidation to bring them up to a decent state of repair and to maintain its historic significance to the site, while also ensuring the proposals for the Kitchen Gardens can be achieved in a sympathetic manner.

3.5 Next steps

Below we have summarised items anticipated to produce a detailed condition report for the walls.

- Further clearance of vegetation on the wall, this will provide an opportunity of a more detailed inspection of the wall to produce drawings for repairs required (pending confirmation from ecologist).
- Plumb survey
- Trial pits for foundation review – hand dug only
- Potential access and review of coping stones to determine condition and missing stones
- Detailed condition survey report and drawings produced scheduling repairs required.

4.0 Appendix - Photos

North Wall



Figure 4.1: Overall extents of the north wall (First visit prior to vegetation removal)



Figure 4.2: Vegetation seen penetrating through the north wall.

North-Western Wall



Figure 4.3: Overall extents of the north-west wall (second visit, following removal of some vegetation)

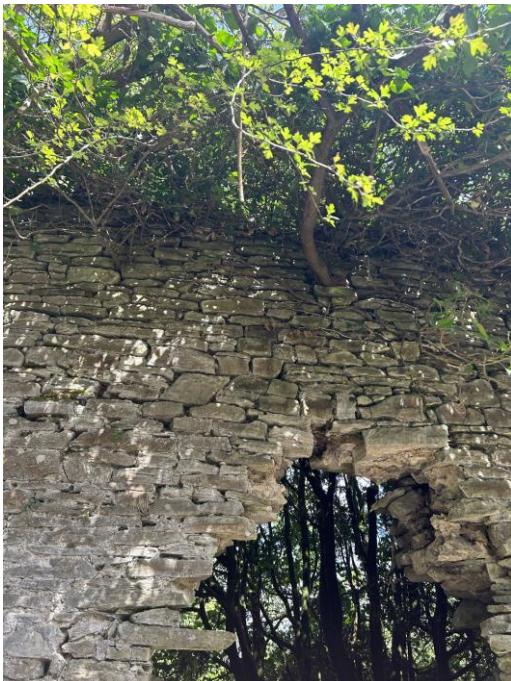


Figure 4.4: Vegetation seen penetrating through the north-west wall.

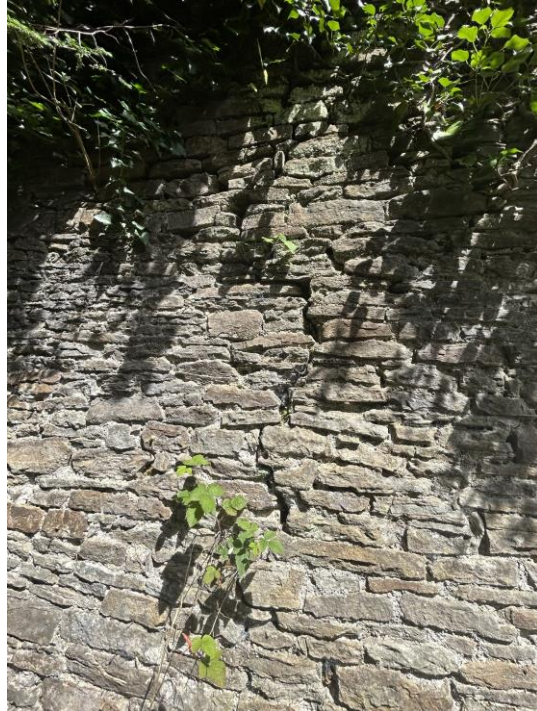


Figure 4.5: Crack seen along the north-west wall.



Figure 4.6: Partially collapsed opening along the north-west wall.

Wall A



Figure 4.7: Wall A – Elevation



Figure 4.8: Wall A – Side view, providing some indication of the section out of plumb and the large vegetation on top of the wall.