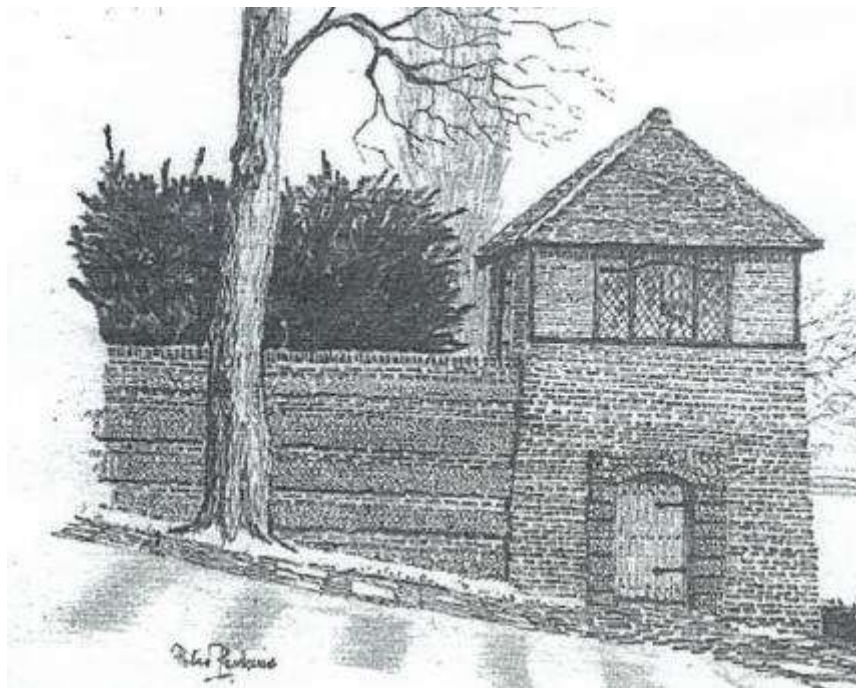


CAVERSHAM COURT GARDENS, GAZEBO

STRUCTURAL REPORT



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CAVERSHAM COURT GARDENS, GAZEBO

STRUCTURAL REPORT

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CAVERSHAM COURT GARDENS, GAZEBO**STRUCTURAL REPORT****C O N T E N T S**

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1. INTRODUCTION

This structural report has been prepared for the inspection of the Gazebo at Caversham Court Gardens, Church Road, Reading RG4 7AD. SFK were appointed to inspect the building and provide advice on appropriate structural repairs to the building. This report will be used to support the application for listed building consent to carry out repairs.

2. INFORMATION AVAILABLE

- Clive Hudson Associates – Gazebo, Caversham Court Gardens, Caversham, Reading – Structural Inspection dated June 2024 Project Ref: 246678.
- Hutton & Rostron – Preliminary timber decay and damp survey of Caversham Court – Gazebo for Reading Borough Council – 404.70 March 2008.
- Hampshire County Council – Caversham Court Garden Restoration – construction issue drawings and NBS specification. Dated Sep 2008 rev E1280 – Rev C1. This includes the following Gazebo drawings.

Sheet Contents	Drawing No.	Revision
Gazebo floor plans as proposed	E1280-201	C1
Gazebo sections A & B as proposed	E1280-202	C1
Gazebo sections C & D as proposed	E1280-203	C1
Gazebo North & East elevations as proposed	E1280-204	C1
Gazebo South & West elevations as proposed	E1280-205	C1
Gazebo details as proposed	E1280-210	C1
Gazebo Door & Grille Details as proposed	E1280-211	C1
Proposed repair to oak beam Gazebo	E1280-215	C1

- A selection of photographs from former Hampshire County Council Architect, Giles Pritchard, showing the Gazebo repair work undertaken in 2008.

3. DESCRIPTION

The Gazebo (also known as the Riverside Garden Pavilion), Fig. 3.1, is part of Caversham Court Gardens which is owned by Reading Borough Council. The Gazebo is Grade II listed and the listing details are reproduced below. The Gazebo was first listed on 22-Mar-1957.

“Details

CHURCH ROAD 1. 5128 (South Side) Caversham Riverside Garden Pavilion at Caversham Court (Formerly listed as Caversham Court Garden) SU 7074 11/263A

22.3.57. II 2. Early to mid C17 probably. Said to bear date 1617. Built by the Lovedays of Caversham Court. Reached by a raised walk (qv) from the main axial terrace (qv). At the south-west corner of the garden. 2 storeys square plan, 1st floor timber framed and entered from raised terrace. The ground floor forms a battered basement and is built of brick. An early example of Flemish bond. Hipped old tile roof. The 1st floor room, intended to give a view of the river has original casement window of the "Ipswich" type to south and to east, and an original 6 panel door. The west entrance to the ground floor room has a rusticated surround of flint. The south side has a blind oculus which possibly once had cruciform opening. Altered doorway to east. Formerly had windvane dated 1663.
Listing NGR: SU7083374809."



Fig. 3.1 Aerial view showing the Gazebo at Caversham Court Gardens.
(Imagery ©2025 Airbus, Maxar Technologies, Map Data © 2025)

Elevation photos are shown in Fig. 3.2 to 3.6.



Fig. 3.2 Gazebo, North elevation (from causeway)



Fig. 3.3 Gazebo, North elevation viewed from east side of causeway



Fig. 3.4 Gazebo, East elevation



Fig. 3.5 Gazebo, South elevation



Fig. 3.6. Gazebo, West elevation

The Gazebo is located at the west end of the gardens. The north elevation is approached from the north via a raised causeway that provides entry to the first floor. Public access to the first floor is currently prevented by keeping the doors locked. The ground to the south is grassed, sloping down away from the Gazebo towards the river Thames. East of the Gazebo a gravel path continues into the park. West of the Gazebo are council owned allotments. Ground level metal gates to the west and east elevations provide access between the gardens and allotments and at the present time are usually kept locked.

The Gazebo is approximately 4.3m square on plan and has two storeys. The pyramid roof has a tiled finish with oak timber framing. The first floor has a central oak beam running north-south with joists running east-west. The floor has oak boards and a lath and plaster ceiling. The load bearing walls are loadbearing brickwork with panels of external flintwork. The ground floor has clay tiled finish.

3.1 Geology

With reference to the British Geological Survey (BGS) maps, for Superficial Deposits, the site is close to a boundary between an area with no records and an area with records of Alluvium – clay, silt, sand and gravel. The Bedrock is described as Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated)-Chalk.

4. SFK INSPECTION

The initial inspection was undertaken on 22 October 2025 by Nigel Winterbottom, Associate Structural Engineer at SFK Consulting, with an additional check on first floor levels on 30 October. A further inspection of a trial pit was undertaken on 27 November 2025. The inspections were recorded through photos included in the report and through sketches as provided in Appendix A. Inspection was typically from ground level, but a telescopic ladder was used where possible to inspect external areas at higher level.

4.1 External Inspection

4.1.1 North Elevation

The north elevation was in overall reasonably good condition. The structural timber members had no significant decay. The timber sill to the entrance doors was noted to be decayed and loose at the east end. Paving in front of the sill was loose and cracked, Fig. 4.1.



Fig. 4.1 North elevation – door sill decayed and paving defects

The wall plates measured approximately 170 w x 110 d. Below the east wall plate there was some loss of mortar below the plate, Fig. 4.2.



Fig. 4.2 North elevation – east wall plate with mortar loss below

The lead flashing detail over the plates, stops at the corners leaving the plate exposed at the base of the 100mmx100mm corner posts, Fig. 4.3. The brown paint finish to the timber was noted to be typically flaking off. There was no significant decay of the plate at this northeast corner.



Fig. 4.3 North elevation – northeast corner post and plate

Below the west wall plate there was also some loss of mortar below the plate (although not as extensive as to the east), Fig. 4.4.



Fig. 4.4 North elevation – west wall plate with mortar loss below

At the northwest corner, the plate had some minor decay with the formation of “V” split to the upper surface, Fig. 4.5. Paint was again flaking off.

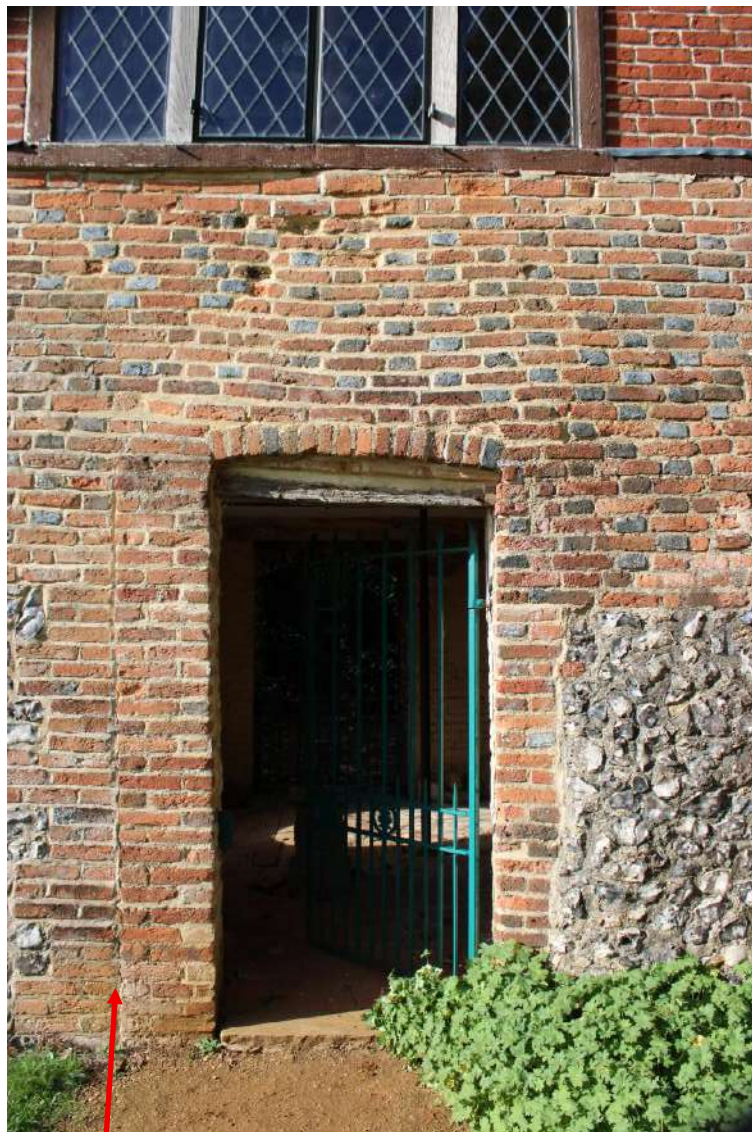


Fig. 4.5 North elevation – northwest corner post and plate

4.1.2 East elevation

The east elevation was in overall reasonably good condition. The wall to the south of the gate was approximately 400mm thick with a flint panel toothed into the brickwork. The wall to the north of the gate was approximately 350mm thick with a flint panel that projected a further 200mm in front of the wall at the bottom and then tapered back to the main wall at the top.

To the south of the gate, the bricks are not fully bonded in (effectively forming a pier), and a fine vertical crack is present. This measured 1.5mm wide at a height of 1270mm from ground. Above the gate there is some historic deformation of the brickwork, and two or three bricks are spalled, see Fig. 4.6 and 4.7. There is also some mortar loss under the wall plate.



Fine vertical
crack

Fig. 4.6 East elevation – gate area

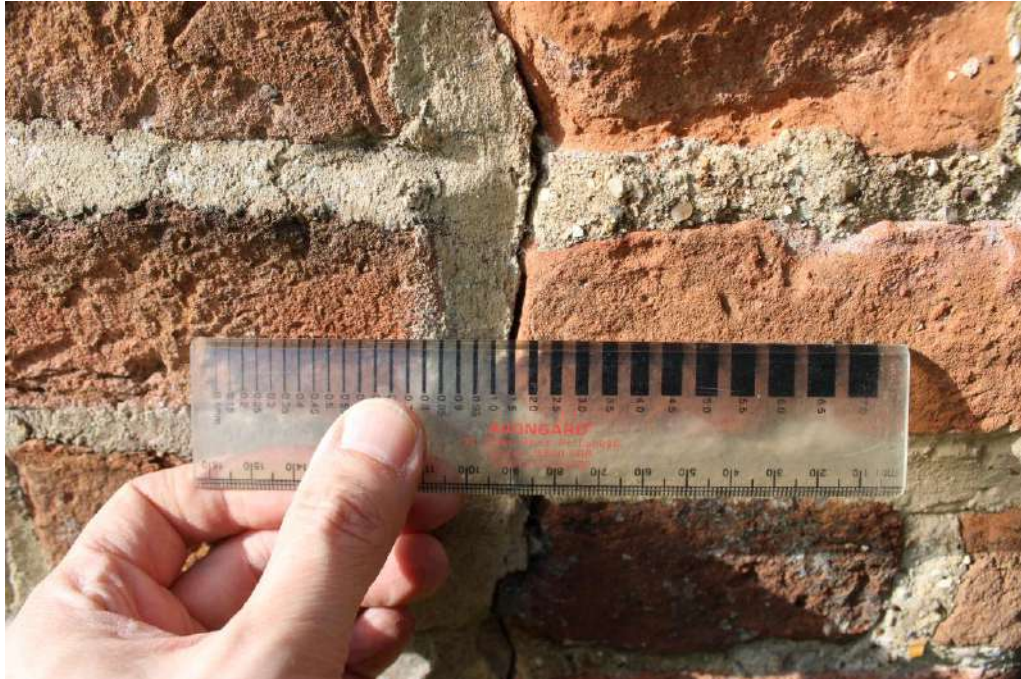


Fig. 4.7 East elevation – vertical crack south of gate, 1.5mm wide at 1270mm high above ground.

Above the gate the twin timber lintels have some decay but viewed from the underside it is apparent that two stainless steel angle lintels have previously been added above the timber lintels, Fig. 4.8. The outer timber lintel has had a previous timber repair at the north end.



Fig. 4.8 East Elevation – lintels above gate

To the first floor below the south edge of the window, there was some minor fine cracking to the mortar joints, Fig. 4.9.



Fig. 4.9 East elevation – brickwork below south edge of window

The lead flashing does not continue across the wall plate under the window, and the paint finish has broken down and flaked off. At the south window post, the peg is missing from the joint and the corner of the bottom of the post has some small local decay, Fig. 4.10.



Fig. 4.10 East elevation – south window post

To the top of the first window post from the south edge, there appears to be a split in the upper wall plate at the peg joint, although this could not be reached for close inspection, Fig. 4.11.



Fig. 4.11 East elevation – split above window post

The southeast corner post has some minor decay to the bottom and a series of vertical splits, mainly at the corners, Fig. 4.12. To the south elevation, the split extends most of the height of the post, Fig. 4.13. The end of the plate was also noted to have local timber wedge packers with gaps around them.



Fig. 4.12 East elevation – southeast post



Fig. 4.13 Southeast post – south elevation

4.1.3 South elevation

The south elevation was in overall reasonably good condition. To the east corner there is fine to slight vertical cracking through the flint panels and bricks, Fig. 4.14.



Fig. 4.14 South elevation – cracking at east corner

At 830mm height the cracking was measured as 3mm wide and at 1580mm height was measured as 1.5mm wide, Fig. 4.15 and 4.16.

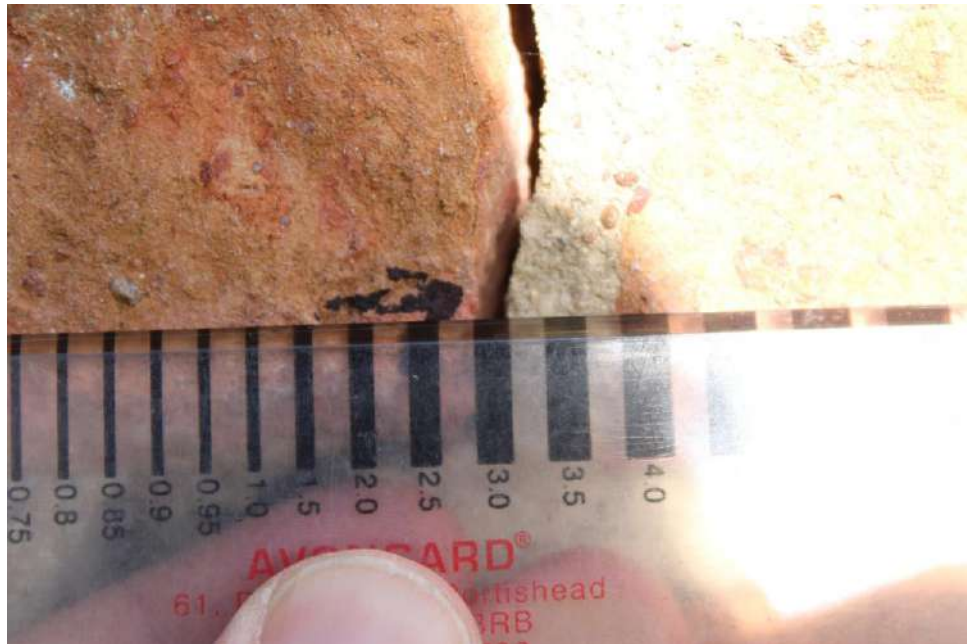


Fig. 4.15 South elevation – vertical crack, 3mm wide at 830mm high above ground



Fig. 4.16 South elevation – vertical crack, 1.5mm wide at 1580 mm high above ground.

Below the circular window there was some mortar loss, Fig. 4.17.



Fig. 4.17 South elevation – mortar loss below window

Above the circular window some fine diagonal cracking along areas that have previously been repointed, Fig. 4.18. The top of the circular window is a distorted shape, but this appears historic.



Fig. 4.18 South elevation – cracking above window

The bottom of the window posts could not be closely inspected due to their height, but they did not appear to have any significant decay. This will need to be rechecked with closer inspection.

4.1.4 South elevation trial pit

To investigate the wall foundation and ground conditions to the southeast corner, a trial pit was dug by Reading Borough Council, Fig. 4.19. This was in accordance with SFK sketch SK100 in Appendix A.



Fig. 4.19 Trial pit position



Fig. 4.20 Trial pit plan view

The findings are recorded below and on SFK sketch SK101 in Appendix A. The flint and brick wall continued below ground level at the same width and did not corbel out on the outside face, Fig. 4.20. The main pit was dug to a depth of 550mm below ground level and a smaller area at the west end was dug approximately 150-200mm deeper. By probing in the deeper hole, it was established that the bottom of the wall was founded approximately 800mm below the south elevation ground level. The cracking to the wall at the corner did not extend below ground level. The ground at the founding level was soft brown clay. See Fig.4.21.



Fig. 4.21 Trial pit looking at south elevation

Although not connected with the structural work it was noted that during the inspection a small bat was present in the bottom of the trial pit. The bat was not disturbed and the Client was advised. The bat was subsequently recovered alive from the pit by the Bat Conservation Trust prior to backfilling.

4.1.5 West elevation

The west elevation was in overall reasonably good condition. The brick condition at the south side was largely obscured due to heavy growth of ivy, Fig. 4.22.



*Fig. 4.22
West Elevation- ivy
growth to south side*

The flintwork and brick surround to the gate opening was in generally good condition except at the bottom on the north side where there were missing bricks and some missing flints, Fig. 4.23.



Fig. 4.23 West elevation – local brick/loss

To the wall north of the gate there was general loss of mortar from the joints at the bottom of the wall and there were three or four spalled bricks at higher level, Fig. 4.24.



*Fig. 4.24
West Elevation- mortar
loss at bottom of wall
and spalled bricks at
higher level*

The wall plate had some loss of mortar under the south end, Fig. 4.25.



Fig. 4.25 West elevation – mortar loss under wall plate

The lead flashing does not continue across the wall plate under the window, and the paint finish has broken down and flaked off. The face of the wall plate has a split along it over the width of the window. Under the north window post the top of the wall plate is significantly decayed (see also section 4.2.2. of the report), Fig. 4.26. The wall plate also appears bowed outwards to the west over the width of the window.



Fig. 4.26 West elevation – decay and bowing of wall plate

4.2 Internal inspection

4.2.1 Ground floor

The north elevation is shown in Fig. 4.27. The brick wall has a small cupboard to the east side. This houses an electrical switchboard, Fig. 4.28.



Fig. 4.27 Ground floor – north internal elevation



*Fig. 4.28
Ground floor –
electrical switchboard
cupboard*

The north wall was noted to have three anchors through it on the west side. These are assumed to be anchored into the ground and have painted rectangular steel plates to restrain the wall. The wall appeared reasonably vertical and was not bowed.

To the northwest corner there is a tapered crack that appears historic, Fig. 4.29. This does not extend through to the outside face. To the northeast corner there may have been a similar crack, but this appears to have been infilled with mortar, Fig. 4.30. Also, in the northeast corner an area of the ceiling plaster has failed, exposing the timber laths.



Fig. 4.29
Ground floor – northwest corner
cracking



Fig. 4.30
Ground floor - northeast corner infill
crack and failed ceiling

The north end of the main floor beam has clearly had a previous repair, Fig. 4.31.



Fig. 4.31 Ground floor – previous repair to north end of main beam

The beam has several deep mortice holes to the soffit, Fig. 4.32, and is likely to have been reused. The beam is currently propped with a single acro prop near midspan. The reason is unclear, but it is assumed there was some concern over the beam, perhaps through excess deflection when subject to public access.



Fig. 4.32 Mortice holes and prop to main timber floor beam

The east elevation is shown in Fig. 4.33. No significant structural defects were noted.



Fig. 4.33 Ground floor – east elevation

The south elevation is shown in Fig. 4.34.



Fig. 4.34 Ground floor – south elevation

There is some diagonal cracking to the brickwork below the window seat, but this appears historic. The two timber lintels above the window are modern replacements and measured approximately 170mm wide x 120mm deep. The main beam appeared to bear onto both lintels. At the window (1300mm clear), the wall thickness was measured as $220+360 = 580\text{mm}$ overall approximately. To the east end of the lintels a small area of plaster ceiling has failed, Fig. 4.35.



Fig. 4.35 Ground floor – south elevation – ceiling loss at east end of lintels

The west elevation is shown in Fig. 4.36.



Fig. 4.36 Ground floor – west elevation

There is some diagonal cracking to the lower brickwork south of the gate, but this appears historic. At the gate, the wall comprises an outer leaf of 300mm flint and an inner leaf of 240mm brick work. At the north side there is some separation cracking between the materials, Fig.4.37. This measured 2mm wide at 1660mm height.



Fig. 4.37 Ground floor – west elevation at north side of gate opening.

The gate has two historic oak lintels visible from the inside. It is assumed there is an outer lintel, but this cannot be seen and its form is unknown. There are no external cracks over the gate. The inner timber lintel is good condition. The middle lintel has a small amount of decay, but this is not currently considered significant.

4.2.2 First floor

The roof over has a main beam running east-west and ceiling joists running north-south. The main beam supports a central post to the pyramid roof. Hip rafters span from the wall plates to the post and jack rafters span from the wall plates to the hip rafters. See Fig. 4.38. There is no ceiling, but the ceiling joists have nail marks indicating a previous lath and plaster ceiling. The roof has a modern sarking membrane and appeared dry at the time of inspection with no evidence of leaks. Some of the historic rafters appear to have had historic wood worm attack. Some rafters have been replaced.



Fig. 4.38 General view of pyramid timber roof

The north elevation is shown in Fig. 4.39. No structural defects were noted.



Fig. 4.39 First floor – north elevation

The east elevation is shown in Fig. 4.40. A vertical crack (2-3mm) was noted to the plaster under the middle of the window but otherwise no defects were noted.



Fig. 4.40 First floor – east elevation

The south elevation is shown in Fig. 4.41. A vertical crack (2mm) was noted to the plaster under the window.



Fig. 4.41 First floor – south elevation

The west and east upper and lower wall plates were noted to have gaps at the ends to the south wall plates – see Fig. 4.42 to 4.45 and Table 4.1 below.

Table 4.1 End gaps between south plate and west/east plates

Corner	Lower plate gap	Upper plate gap
Southwest	15mm	8mm
Southeast	9mm	8mm

The gaps appear historic rather than recent movement and examining the ceiling joists to central beam joints, Fig. 4.46, did not suggest any recent movement either.



Fig. 4.42
First floor – Southwest corner
lower wall plate gap



Fig. 4.43
First floor – Southwest corner
upper wall plate gap



Fig. 4.44
First floor – Southeast corner
lower wall plate gap



Fig. 4.45
First floor – Southeast corner
upper wall plate gap



Fig. 4.46 First floor – central roof beam looking east (south side on the right – joints with ceiling joist do not suggest recent movement)

The west elevation is shown in Fig. 4.47. The main defect is extensive decay to the central part of the wall plate under the window, Fig. 4.48.



Fig. 4.47 First floor – west elevation



Fig. 4.48 First floor – west elevation – decay to wall plate

The first floor was noted to be uneven in level. There was a distinct fall to a lower level in the northeast corner, Fig. 4.49. The floor along the west elevation was also bowed, Fig. 4.46. To gauge and record the falls to the floor, measurements were taken with a 1.2m long digital spirit level, and these are recorded on sketch SK102 in Appendix A.



Fig. 4.49 First floor – fall in level towards northeast corner

5. DISCUSSION & RECOMMENDATIONS

As the Gazebo is listed any repairs are likely to require listed building consent. This should be checked and obtained before commencing any work.

Repairs such as repointing in lime mortar and local flint/brick repair/replacement are required. These are typically to small local areas and are not of structural concern. A conservation architect's advice should be sought for details of the mortar and replacement materials.

All timber repairs should be made with seasoned oak with stainless steel fixings unless otherwise noted.

5.1 External elevations

Repairs required to the north elevation are typically non-structural such as the timber door sill replacement, paving repair and repointing below the wall plates.

A detail that requires further conservation architectural review is at the bottom of all the corner posts. The current lack of flashing is creating an increased risk of decay. At the northeast corner allowance should be made for a small local patch/pack detail to the top of the lower wall plate. Similarly, the lack of sill plate flashing detail across the windows is also creating an increased risk of decay and requires architectural review. To the west elevation this has led to water ingress, beetle attack and decay. The plate here requires local replacement.

To the east elevation repointing is required under the upper wall plate. The spalled bricks should be considered for replacement. The vertical cracking to the south of the gate opening and cracking under the window are not considered structurally significant currently. The cracks should be repointed and monitored for future re-cracking.

To the east timber window, where there is a split at the top of a post, this should be further investigated and allowance made for a local face patch repair. At the bottom of the east window post where peg is missing this should be replaced and the bottom checked for extent of decay. A local face patch repair may be required.

For the southeast corner some decay was noted at the bottom of the post. This did not appear extensive and ideally repair would be carried out without the need to remove any infill brickwork. Allowance should be made for a short scarf repair at the bottom of the post. The south face of the post had vertical spiting and an appropriate repair technique such as face repair will need to be agreed with conservation carpenter. The wall plate at the southeast corner also requires re-bedding/packing with lime mortar and slate/tiles.

For the south elevation the trial pit investigation showed the wall continued to a reasonable depth below ground level (circa 800mm) and that the vertical cracking at the corner did not continue below ground level. The cracking does therefore not appear to be due to foundation movement and might be attributed to restraint/thermal movement of the wall. The cracking is not of structural concern, and it is therefore suggested the cracking is repointed and monitored for any future re-cracking.

The deformation above the south circular window appears historic and may have occurred due to previous decay of internal timber lintels which were replaced as part of the 2008 repairs. However, the outer skin of brick is not directly supported by the timber lintels and may rely on the arching action over the window. This may explain the cracking over the windows as any small vertical movement of the arch is likely to result in the form of cracking noted. As this cracking has likely re-occurred since the 2008 repairs, it is recommended that the brickwork is strengthened over the circular window. This can be achieved with the addition of stainless steel Helifix Helibars that are inserted into the mortar joints over the window.

For the west elevation the ivy growth to the south side should be carefully removed to allow further inspection of the wall condition. Repointing is required under the wall plate and to the lower part of the wall, north of the gate. At the bottom of the gate on the north side a small local area requires rebuilding in brick and flint. The spalled bricks to the north side (just above top of gate level) should be considered for replacement.

5.2 Internal areas

5.2.1 Ground floor

Based on photographs from repair work in 2008, the internal finishes to the ground floor (part plastered and part exposed brick) appear similar to the present condition. The cracking noted (northwest and northeast corners, south elevation below window seat, east elevation) typically appears historic and is not currently of structural concern. The cracks should be repointed with lime mortar and monitored for future movement.

The lath and plaster ceiling has failed in local areas. The ceiling should be checked in more detail by a conservation architect and repaired to their specification.

5.2.2 First floor

Drawing E1280-21 C1 Proposed repair to oak beam Gazebo, from 2008 shows a central steel flitch plate bolted through the main beam at the north end over a length of 850mm. However, photographs of the repair work, Fig. 5.1 and 5.2, do not show a flitch plate repair. Instead, the end of the timber beam has been replaced and jointed to the existing with a vertical half joint. The joint has two small bolts the top and is likely to have been glued with an epoxy adhesive.



Fig. 5.1 First floor – repair work to north end of main beam in 2008



Fig. 5.2 First floor – repair work to north end of main beam in 2008

Drawing E1280-21 C1 suggests that the main beam is 195mm deep by 180mm wide. Based on this, preliminary calculations using a nominal imposed load of 2.0 kN/m² indicates that the bending stress is at its limit, but that deflection would exceed suggested current design code limits by over a factor of 2. It was also noted that the beam has been reused and has significant mortice holes to the soffit along its length. Making an appropriate reduction for this to the beam width leads to a failure in bending stress and deflection exceeding limits by a factor of 3. It is not known why temporary propping has been introduced but based on the preliminary calculations, it is suspected the beam is likely to deflect excessively under imposed load which may cause alarm to users.

Options for strengthening the beam would be limited in this case. Adding a central steel plate would not be feasible due to the mortice holes along the soffit. Adding additional members to the sides of the beam would compromise the existing mortice and tenon fixings of the joists into the sides of the beam. It is therefore proposed that a new permanent timber post be added to reduce the span of the main beam. This will ensure it can support a full imposed load of 2.0 kN/m² and not deflect excessively. The post can be positioned offset to the north from the midspan position to help maintain a clearer path through the east and west gates. The post would be proposed to be supported off a new foundation and brick plinth. Refer to sketch in Appendix B for further details. To help confirm the repair details for construction, it is recommended that one or two floorboards along the beam are carefully lifted to allow full inspection of the beam.

In 2008 repair works were noted to have been carried out to decayed joist ends. Since it is 17 years since these repairs were carried out it would be sensible, as part of the repair works, to carefully lift the boards at each edge to re-inspect the joist ends. If additional decay is found, then replacement ends with scarf joints may be required.

The isolated cracks to the plaster under the east and south windows are not considered structural. A conservation architect should be consulted on possible repairs.

The gaps noted to the ends of the wall plates to the south elevation are likely to be historic and appear unlikely to be actively moving. These should be monitored for any future movement say every 5 years.

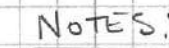
The decay to the west elevation wall plate is most likely to the lack of flashing detail across the window sill as previously discussed. The detail requires architectural review, and the decayed plate will require local replacement. Refer to typical repair details in Appendix B.

5.3 Summary

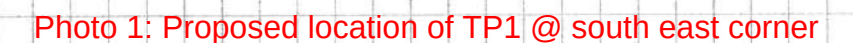
Overall, the Gazebo is in reasonable structural condition. Previous repairs were carried out in 2008. Externally some minor timber repairs are required, some repointing is required and Helifix Helibars are recommended over the south circular window. Internally some repointing is required to the ground floor, a new timber post and foundation is recommended to support the main beam, and the west wall plate requires a decayed area to be replaced. During repair works the condition of first floor joist ends should be checked (by carefully lifting floorboards) and the details of the main timber beam checked. A Conservation Architect should be consulted with respect to flashing details to the plates and posts, and for mortar repair specifications. Also refer to sketches in Appendix B. Areas of repointed cracks, gaps to south wall plates and the first floor should be checked for movement say every 5 years.

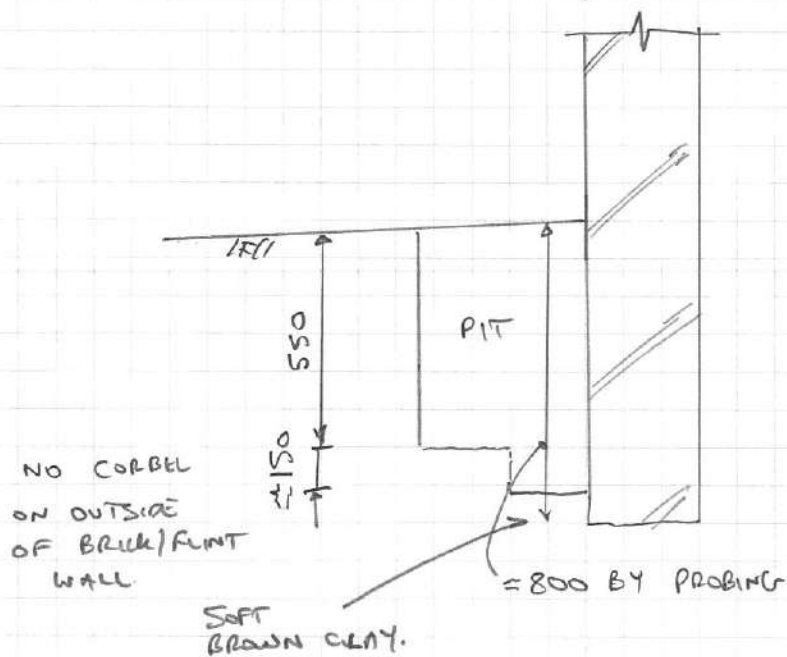
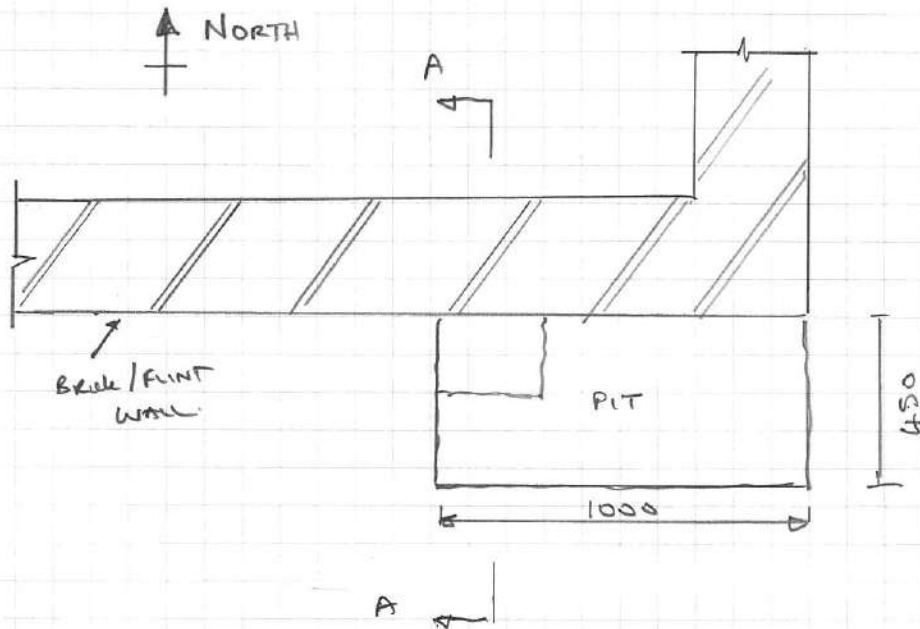
6. APPENDIX A – SFK INSPECTION SKETCHES

25143- SK100	Gazebo Trial Pit
25143- SK101	Gazebo Trial Pit Record
25143- SK102	Gazebo First Floor Fall Measurements



-
- A photograph showing a brick and stone foundation wall. The wall is constructed with red bricks and grey stones. In the foreground, there is a lush green lawn with a circular manhole cover visible. The background shows dense green foliage.





Project: CAVERSHAM COURT

Job Ref: 25143.

Drawn: NW

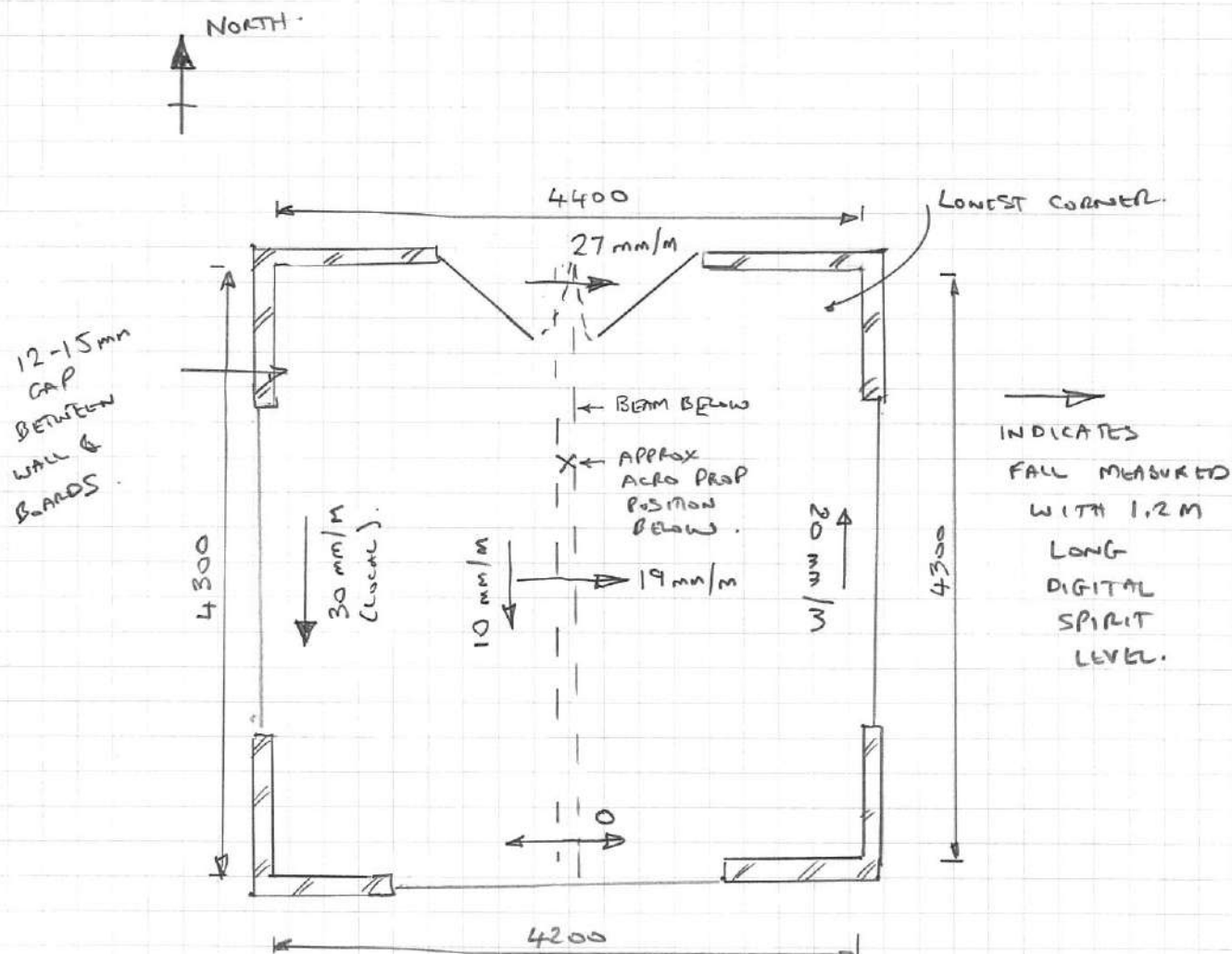
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Sheet No: 5K102

Rev:

Element: GAZEBO - 1ST FLOOR
FALL MEASUREMENTS

Date: 30/12/2025



1st Floor PLAN (SHOWING MEASURED FALLS).

OAK FLOOR BOARDS 100 TO 300 mm WIDE NAILED FIXINGS.

7. APPENDIX B – SFK REPAIR SKETCHES

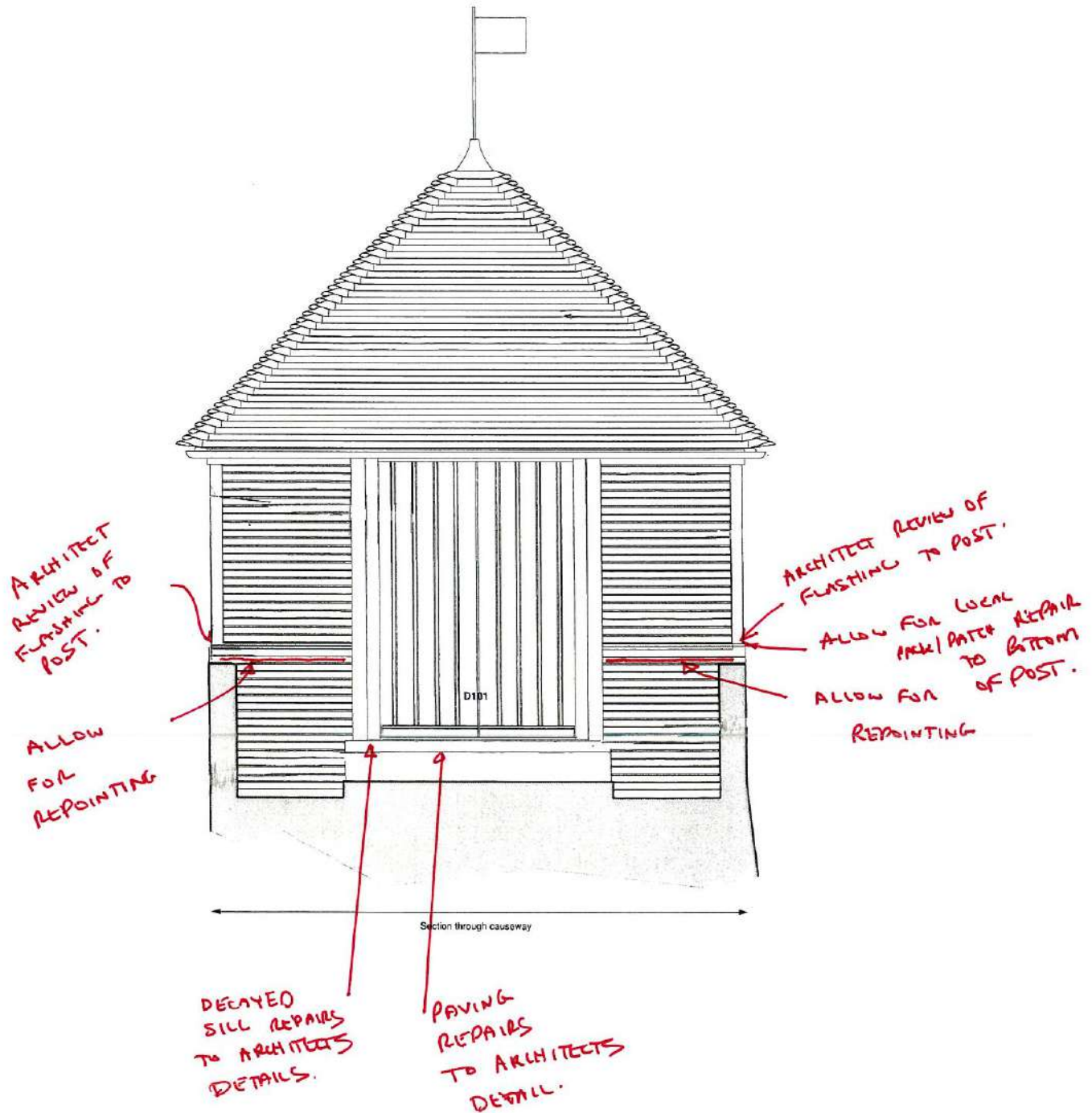
25143- SK200	Gazebo North Elevation Proposed Repairs
25143- SK201	Gazebo East Elevation Proposed Repairs
25143- SK202	Gazebo South Elevation Proposed Repairs
25143- SK203	Gazebo West Elevation Proposed Repairs
25143- SK204	Gazebo Proposed Repairs – Typical timber face repairs
25143- SK205	Gazebo Proposed Repairs – Typical timber scarf repairs
25143- SK206	Gazebo Proposed Repairs – New Post

Helifix HeliBar product sheets 1-3 March 2023

SFK consulting structural engineers • historic building specialists	Project: CAVERSHAM COURT GARDENS GAZEBO		Job Ref: 25143.	
	Drawn: NW.	Scale: 1:50 2A4	Sheet No: SK200	Rev:
	Element: NORTH ELEVATION PROPOSED REPAIRS		Date: 05/01/2026	

NOTES: -

1. READ WITH SFK REPORT 25143/RO2.

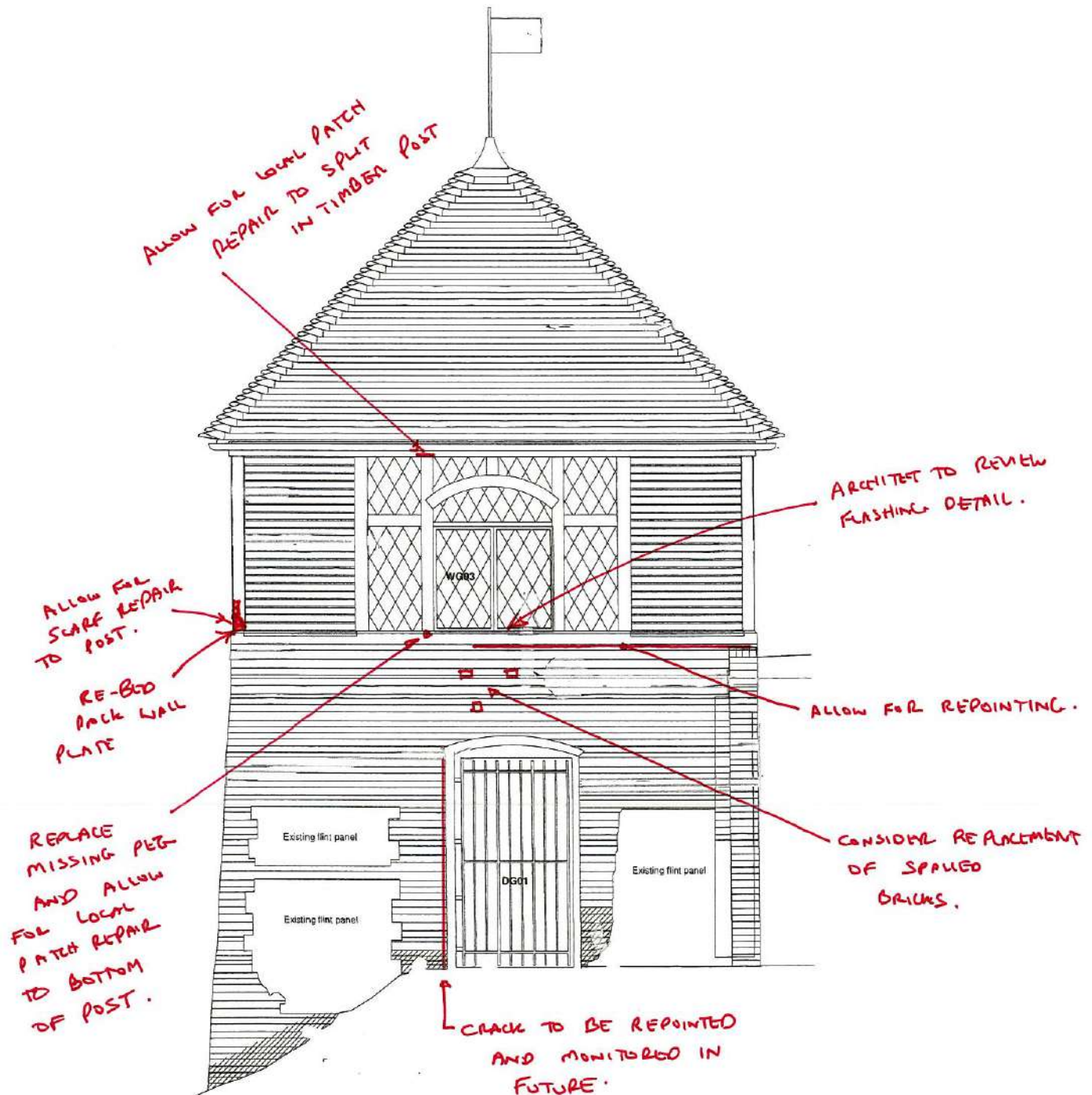


NORTH ELEVATION

SFK consulting structural engineers • historic building specialists	Project: CAVERSHAM COURT GARDENS GAZEBO		Job Ref: 25143	
	Drawn: NW.	Scale: 1:50 2A4	Sheet No: SK 201	Rev:
	Element: EAST ELEVATION PROPOSED REPAIRS		Date: 05/01/2026	

NOTES:-

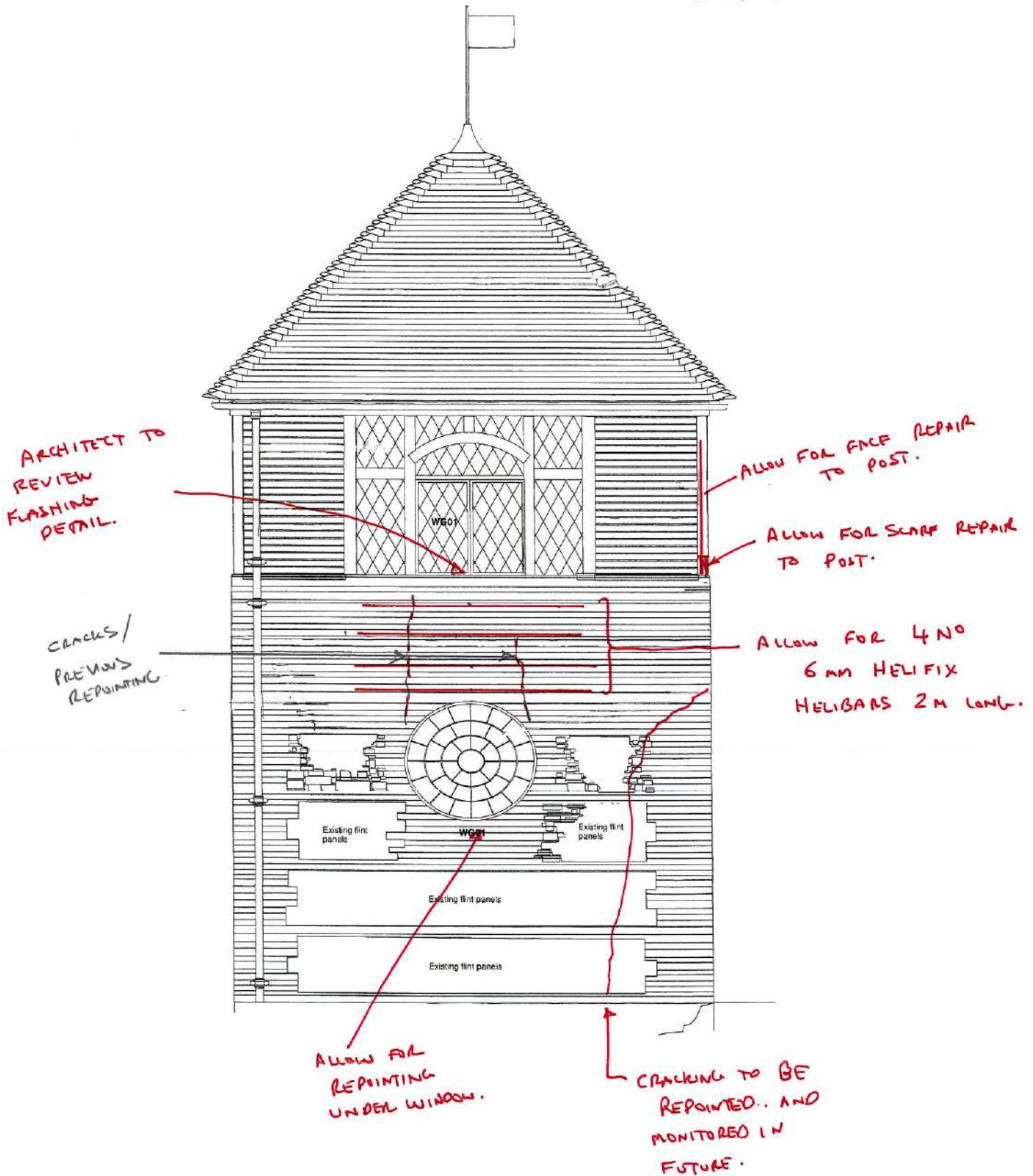
1. READ WITH SFK REPORT 25143 / R02.



EAST ELEVATION

NOTES:-

1. READ WITH SFK REPORT
25143/R02.



SOUTH ELEVATION

SFKconsulting

structural engineers • historic building specialists

Project: CAVERSHAM COURT GARDENS
GAZEBO

Job Ref: 25143.

Drawn: NW.

Scale: 1:50 2A4

Sheet No: SK 203

Rev:

Element: WEST ELEVATION
PROPOSED REPAIRS

Date: 05/01/2026

NOTES:-

1. READ WITH SFK REPORT
25143/R02.

ALLOW FOR
REPLACEMENT OF
DECAYED
WALL PLATE
+ ARCHITECT TO
REVIEW FLASHING
DETAIL.

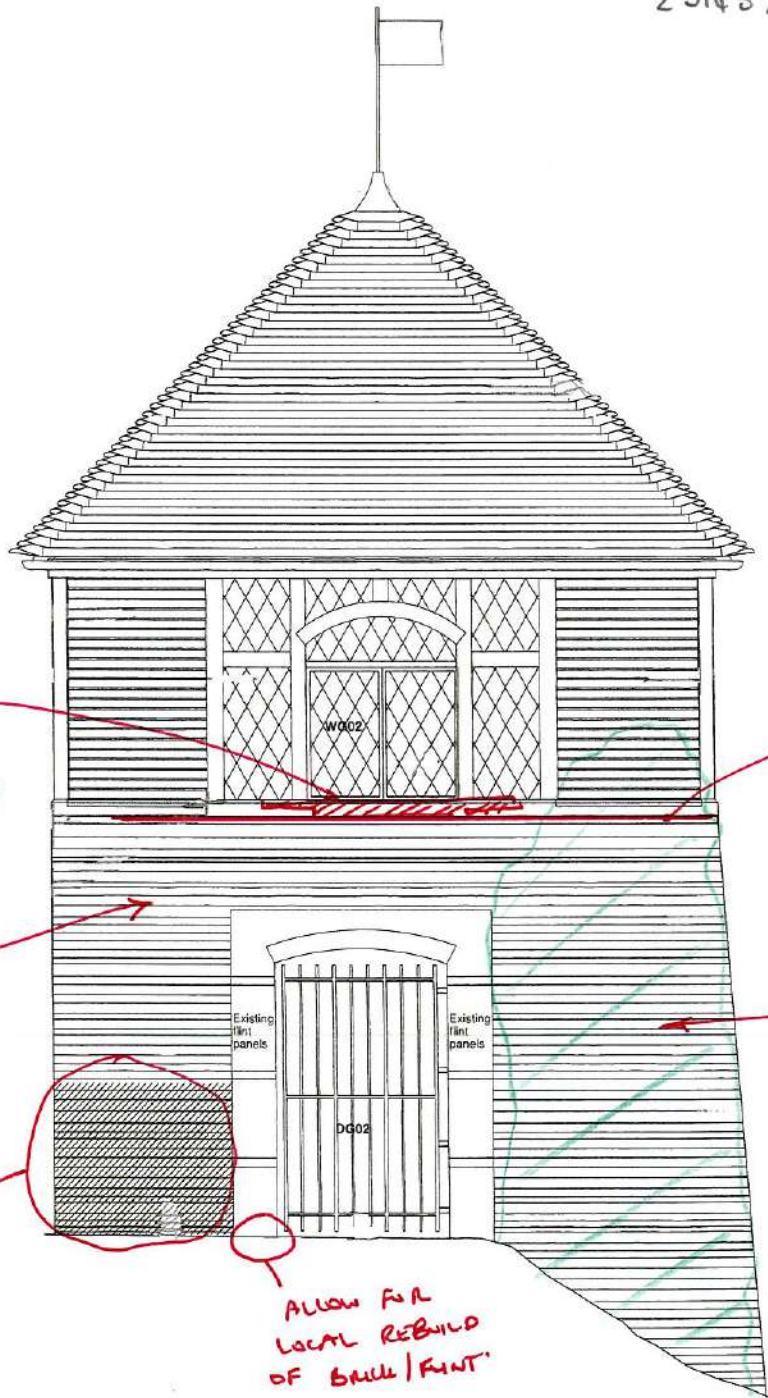
CONSIDER
LOCAL
REPLACEMENT
OF SPALLED
BRICKS.

ALLOW
FOR
REPOINTING

ALLOW FOR
LOCAL REBUILD
OF BRICK/FLINT.

ALLOW FOR REPOINTING
UNDER WALL PLATE.

CAREFULLY
REMOVE
VEGETATION.



WEST ELEVATION

Project: CAVERSHAM COURT GARDENS.
GAZEBO

Job Ref: 25143.

Drawn: NW.

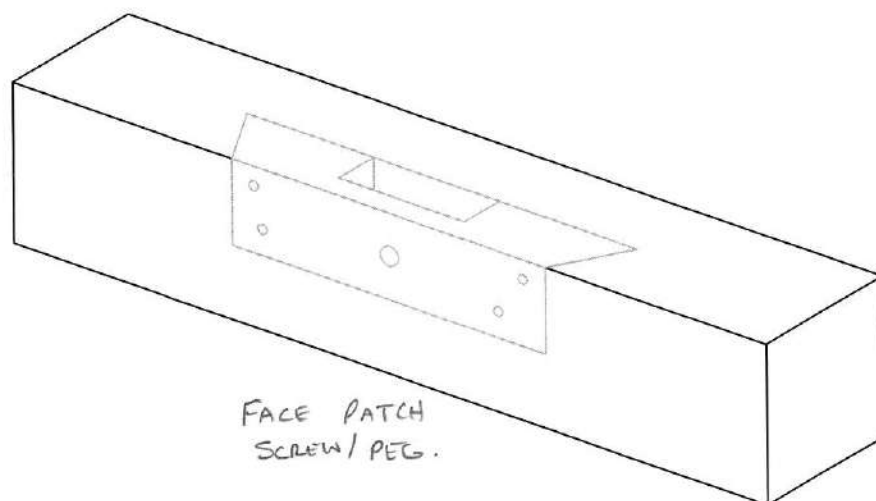
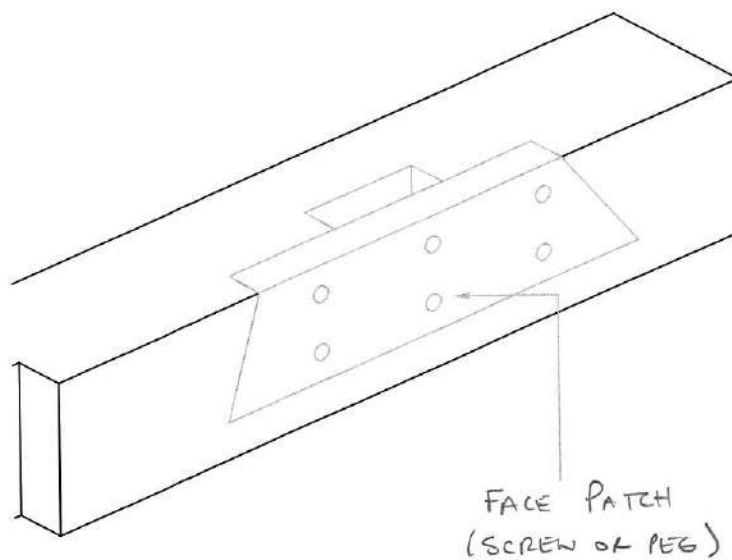
Scale: NTS

Sheet No: SK 204

Rev:

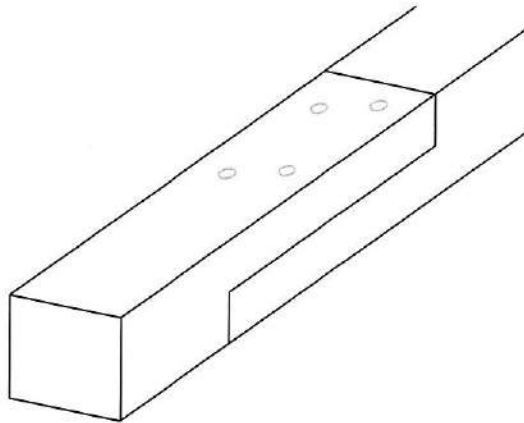
Element: PROPOSED REPAIRS
TYPICAL TIMBER FACE REPAIRS.

Date: 05/01/2026.



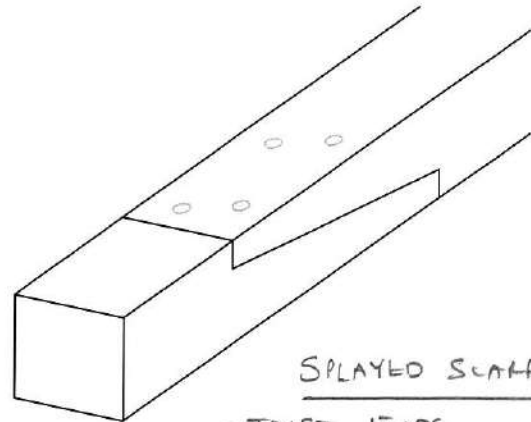
NOTES:-

1. READ WITH SFK REPORT 25143/R02



HALF SCARF.

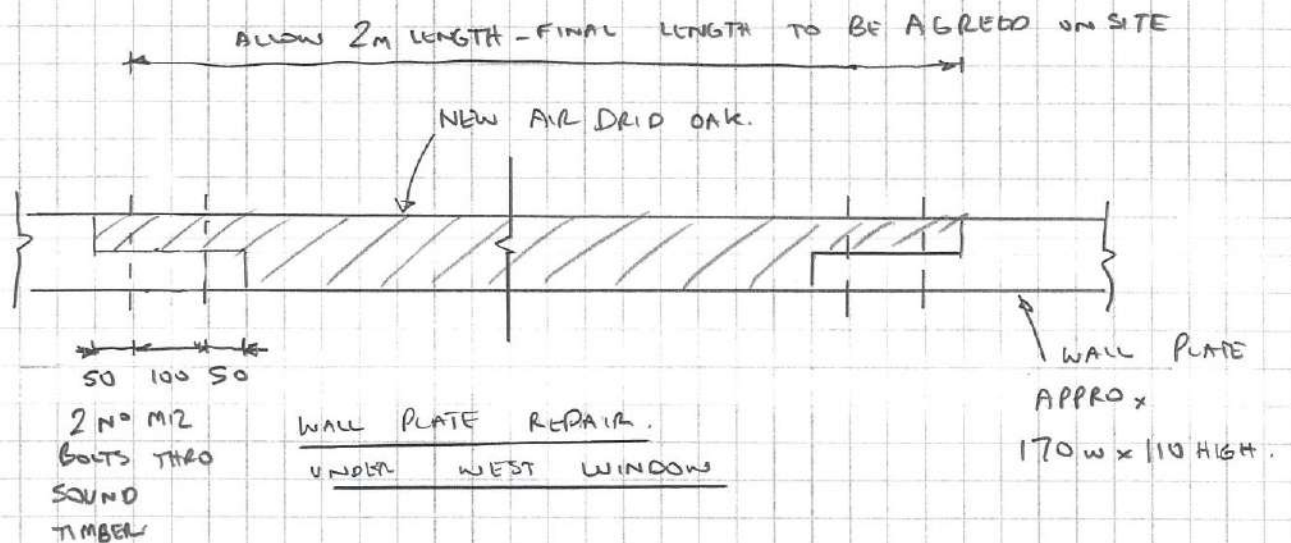
-JOIST ENDS (IF REQUIRED)



SPLAYED SCARF

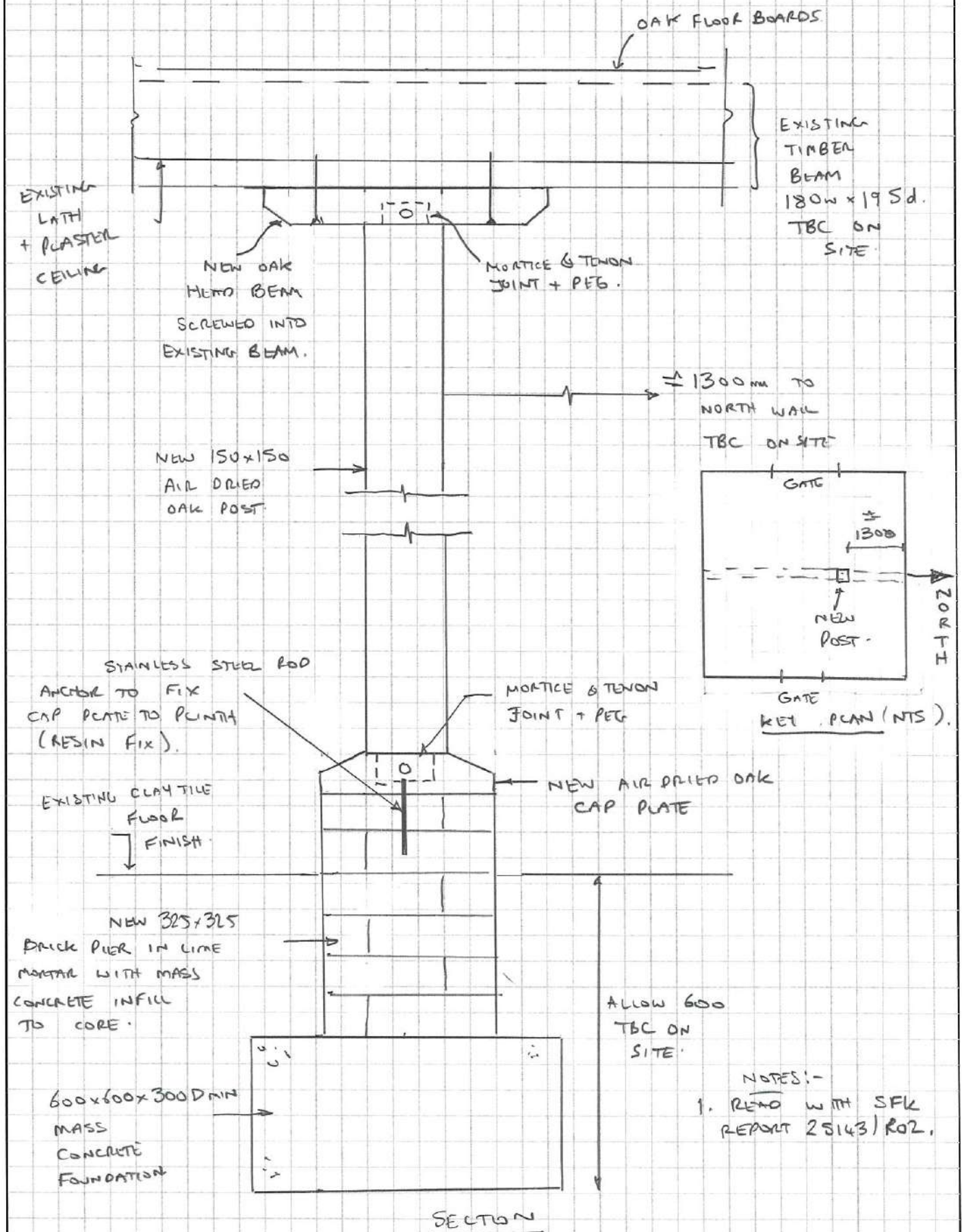
-JOIST ENDS
(IF REQUIRED).

AND TO CORNER POST.



NOTES:-

1. READ WITH SFK REPORT 25143/R02

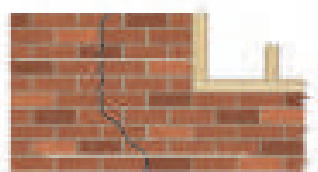


HeliBar

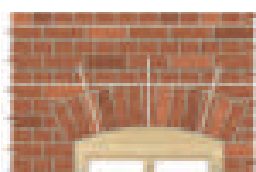
Helical stainless steel reinforcing bar for masonry repair and strengthening in both remedial and new build situations

APPLICATIONS

- Crack stitching
- Lintel repair and creation
- Forming deep masonry beams
- Horizontal structural restraint (when used with BowTie systems)
- Reconnecting separated walls
- Securing parapet walls
- Support existing masonry when creating new openings
- Creating movement joints
- Reinforcing new build masonry
- Seismic upgrades for existing masonry
- Repairing bridges, tunnels and arches



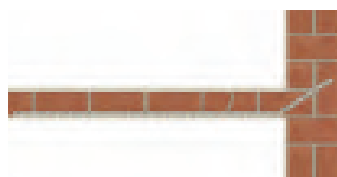
Crack stitching



Lintel reinstatement



Securing parapet walls



Reconnecting separated walls

Over 100 standard repair specifications are available online, covering all common structural faults.

Relevant Repair Details: BW01 & BW02; CS01 to CS14 (except 4, 7, 9, 11 & 12); LB01 to LB05; LR01 to LR11; MA03 to MA05; MJ01 to MJ03; PW01 to PW03; RB06; RF07 & RF09; RW01, 3 & 6;



FEATURES

- Austenitic stainless steel helical bars
- Combines great axial strength with flexibility
- Accommodates differential building movement
- No additional stresses introduced into structure
- Generates high tensile strength with mortar (new build only) or HeliBond grout
- Extremely economical compared with alternative methods
- May remove or reduce the need for mass underpinning
- Fully concealed once installed
- Avoids expensive taking down and rebuilding
- Minimal disruption to building's fabric or occupants
- Spreads structural loads to avoid secondary cracking
- Reduces the potential for cracking in shrinkable materials



For full product information, case studies and downloadable repair details go to:
www.helifix.co.uk/products/remedial-products/helibar

TECHNICAL SPECIFICATIONS

SLOTH DEPTH AND SPACING

	Single skin/ Cavity wall	Solid Masonry		
		Up to 102.5mm	102.5mm to 225mm	Over 225mm
Depth of slot	25 – 35mm		25 – 40 mm	25 – 40mm on both sides
Vertical spacing	Every 4 – 6 courses, 300 – 450mm			

HELIBAR

Material	Austenitic stainless steel Grade 304 (1.4301) or 316 (1.4401)
Diameter	4.5mm, 6mm, 8mm and 10mm
Tensile strength (6mm HeliBar)	10kN
0.2% Proof stress (6mm HeliBar)	900 N/mm ² (304 / 1.4301) 840 N/mm ² (316 / 1.4401)
Standard lengths	1m, 1.5m & 2m – in packs of 10
Width of slot	Full height of bed joint (10mm in render/plaster)
Bonding agent	HeliBond cementitious grout. 1 x 3ltr HeliBond = 10 linear metres of crack stitching

RECOMMENDED TOOLING

For cutting slot up to 40mm deep	Twin-bladed cutter with vacuum attachment or angle grinder or hammer and mortar chisel
For mixing HeliBond grout	3-jaw-chuck drill with mixing paddle
For injection of HeliBond into slots	Helifix Pointing Gun CS with mortar nozzle
For smoothing pointing	Standard finger trowel
For inserting HeliBar	HeliBar Insertion Tool

INSTALLATION PROCEDURES

1. HeliBar to be long enough to extend a minimum of 500mm either side of the crack or 500mm beyond the outer cracks if two or more adjacent cracks are being stitched using one rod.
2. Where a crack is less than 500mm from the end of a wall or an opening, the HeliBar is to be continued for at least 200mm around the corner and bonded into the adjoining wall or bent back and fixed into the reveal, avoiding any DPC.
3. For solid masonry in excess of 225mm thick and in a cavity wall where both leaves are cracked, the wall must be crack stitched on both sides.
4. If there is render/plaster, this thickness must be added to the depth of slot. Crack stitching must be installed in the masonry and never in the render.
5. Ensure the masonry is well wetted or primed to prevent premature drying of the HeliBond due to rapid de-watering, especially in hot conditions. Ideally additional wetting of the slot should be carried out 1 to 2 minutes prior to injecting the HeliBond grout.
6. Do not use HeliBond when the air temperature is +4°C and falling or apply over ice. In all instances the slot must be thoroughly damp or primed prior to injection of the HeliBond grout.



1. Rake out or cut slots into the horizontal mortar beds, a minimum of 500mm either side of the crack.



2. Clean out slots and flush with clean water and thoroughly soak the substrate within the slot.



3. Using the HeliFix Pointing Gun, inject a bead of HeliBond along the back of the slot.



4. Using the HeliBar Insertion Tool push one HeliBar into the grout to obtain good coverage.



5. Insert a further bead of HeliBond over the exposed HeliBar, finishing 12mm from face and 'iron' firmly into the slot using the HeliBar Insertion Tool.



6. Inject CrackBond TE3 into the crack leaving enough space for making it good. Re-point the bed joints with matching mortar and make good the crack.