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THE OLD FORGE

WROTHAM ROAD.
MEOPHAM,
GRAVESEND,
KENT
DA13 0JE

REPAIR
METHODOLOGY
STATEMENT

APRIL 2024

1. SCOPE OF REPORT AND REPAIR METHODOLOGY

This document accompanies the application seeking to Discharge Planning Condition 5 (Listed Building Consent Application 20200655) for the following works at The Old Forge, Wrotham Road, Meopham, Gravesend, Kent, DA13 0JE.

The condition that we are seeking to address is:

Prior to the commencement of the works hereby approved a detailed repairs schedule showing the extent of repairs and alterations, including how it is intended to retain the acknowledged heritage elements of the Listed building shall be submitted for prior approval in writing by the Local Planning Authority. The development shall thereafter be carried out in accordance with the approved details.

Reason: No such details have been submitted and in order to ensure special regard is paid to protecting the character and appearance of the Listed Building and Hook Green Conservation Area pursuant to Policy CS20 of the Gravesham Local Plan Core Strategy (2014) and saved policy TC3 of the Gravesham Local Plan First Review (1994).

A previous application (20240125) was submitted in 2024 to discharge the conditions 3 and 5 which included a schedule of repair .At the time the Schedule of Repair was considered to be acceptable and the application was refused on the basis of the proposals to discharge the other condition for glazing. See below an extract :

“The Conservation Officer advises that the repairs schedule is acceptable in heritage terms. It is therefore considered that condition 5 can be discharged.” and referred to in the conclusion, “Whilst acceptable information has been submitted to discharge condition 5, the information submitted to discharge condition 3 is not acceptable. The Council is unable to issue a split decision.”

Therefore, the attached document builds and supplements the previously submitted schedule of repair.

The proposed works are as listed below:

- Alterations and refurbishment of main house to include new flat roofs, new windows and doors.
- Conversion of existing detached garage to one bedroom annexe and home office.

This document and any appended information provides the necessary information to discharge the condition listed above (following approval of the application on the 1st December 2020). A visual survey was undertaken and a information is supplemented by photogarphs of the structure taken in the same period. The content is limited to identifying structural and constructional defects which are apparent to the eye with some discussion of the likely causes based on an understanding of its historic form and method of construction, the effect of any alterations over its lifetime and other causes of potential failure or defects.

Issue/ Revision	Date	Description
DRAFT	April 2026	Draft issue to Client

The repair methodology takes the following elements and documents into consideration:

- Building Survey of The Old Forge by Stuart Little (Chartered Building Surveyor).
- Asbestos Refurbishment Survey by KD Drainage and Asbestos Ltd.
- Design, Access & Heritage Statement.
- SPAB's technical advice notes.
- Historic England's technical conservation guidance.
- Site visits.

A regular maintenance schedule, such as the clearing of the gutters and drains, the fixing of slipped slates and tiles, should be arranged to maintain the health of the building, delay its decay and prolong the need for major interventions.

A repair should only be carried out when the problem(s) is identified and understood following careful investigation and monitoring. Where a full repair is not possible at a particular point, a temporary repair should be carried out instead to buy time for the building until a full repair is viable. Where a problem has no major effect on the use and structural integrity, it is best to be left alone.

The repair should aim to reduce the long-term deterioration of a building's fabric by remedying the cause of the defects, rather than to provide short-term solutions that the problems would be likely to return.

While deciding the approaches to the repair, the key factors for consideration are compatibility/suitability, context, cost, reversibility and longevity of the repair. The repair should be sensitive and relevant to the significance of the building fabric.

The majority of the Old Forge was constructed in traditional solid brick walls which need to breathe and allow any moisture absorbed by the building fabric to evaporate back out from the surface. Breathable structure, good ventilation and adequate heating were required to allow the building to remain dry.

Various interventions have been carried out at the Old Forge historically such as the use of modern impervious materials i.e. cement mortar, impermeable paint and plaster etc, which prohibits the building from breathing as it should, prevents moisture from evaporating and increases the water content within the building structure, which have led to further problems such as the growth of moss/algae, mould, wood decay, water ingress etc. The defective lead flashings and weathering junctions have also contributed to the deterioration of the building.

The objective of the repair should aim to allow the building to breathe and stay dry again by carefully and selectively replacing the impervious materials with breathable ones, fixing defective weathering elements, while retaining the significant fabric and the character of the property.

The repair works should be done in phases. This allows one to observe and monitor the consequences of the repairs before applying them to the rest of the building.

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2. BACKGROUND

The Old Forge is a Grade II listed building located within the Hook Green Conservation Area.

The property comprises a timber-framed hall house with later masonry construction and a 19th-century Victorian timber-framed extension. Additional later extensions have been constructed to the west (rear) of the building.

At ground floor level, the accommodation includes three reception rooms (living room, dining room, and snug), a kitchen, cloakroom, and bathroom. A small cellar is located beneath the central reception room. At first floor level, there are five bedrooms and one bathroom. Two of the bedrooms, forming part of the late 19th-century cottage, are accessed via a separate staircase.

The original structure remains predominantly timber-framed; however, some areas are now supported by brick walls and infill panels. A number of original timber members have been altered, cut, or removed, and no longer perform their intended structural function. Infill panels of wattle and daub and flint are present, although these do not appear to be original.

The roofs over the main house and Victorian cottage are pitched. The main house has a hipped roof covered with clay peg tiles, while the cottage has a slate-covered gabled roof. There is evidence to suggest the main house was historically thatched.

Later extensions are formed with flat roofs finished in roofing felt, this has been replaced recently in accordance with the approved planning and listed building consent application. Windows are poor-quality, modern timber casements with glazing bars, and the front door is of vertical boarded construction. The ground floor is of solid construction, with the exception of the area above the cellar, which comprises a suspended treated softwood floor. Access to both the cellar and first floor is provided via modern timber staircases located within the entrance hallway.

To the south of the house is a double garage, previously used as a studio and office, which is now in poor condition. A flat-roofed structure links the main house, garage, and southern boundary wall, providing a covered storage area. A second detached double garage is located in the north-west corner of the site and has been converted to ancillary use under Householder Planning and Listed Building Consents (refs. 20200655 and 20200654). The property also benefits from a sloping lawned garden to the rear.

Overall, the property is in need of comprehensive repair and maintenance. The kitchen, bathroom, heating and hot water systems, and electrical installations all require replacement. The proposed works aim to repair the building and remove unsympathetic modern alterations, enhancing its character and securing its long-term conservation.

All repair works are proposed in accordance with best practice guidance from the Society for the Protection of Ancient Buildings (SPAB) and Historic England, prioritising the retention of historic fabric wherever possible and incorporating sensitive, like-for-like repairs where necessary.



Fig.1 Old Forge - Front Elevation and Entrance



Architectural elevation drawing of a building facade. The drawing shows a main structure with a chimney on the left and a lower extension on the right. Key height markers and labels include:

- Top left corner: $+7.54 \pm 98.21$
- Chimney top: $+2.96$
- Roofline (left): $+5.01 \pm 95.68$
- Roofline (right): $+3.46 \pm 94.13$
- Roofline (far right): $+3.04 \pm 93.71$
- Window sill (left): $+0.38 \pm 91.05$
- Window sill (right): $+0.43 \pm 91.10$
- Foundation level: $+0.11 \pm 90.78$
- Material label: "timber cladding"
- Material label: "20th century Stretcher bond brickwork"

Architectural section drawing of the Entertainment Area. The drawing shows a cross-section of a building with a steep gabled roof. The roof is labeled with a pitch of 1:7.23=87.90. The roof structure is shown with clay peg tiles and vertical tile hanging. A new flat roof is indicated on the left side. The building has a new timber cladding and a new timber-framed door and floor-to-ceiling window. A new door is shown at the base of the building. A new glazed entrance is shown on the right side. The drawing includes a section line with the text 'SECTION THROUGH ENTERTAINMENT AREA'. The drawing also includes a datum line at 10.00=-90.67 and a vertical scale of 2.000. The drawing is labeled with various dimensions and elevations, including 1:7.23=87.90, 1:4.18=61.16, 1:2.79=93.46, 1:0.49=91.16, and 10.00=-90.67. The drawing is also labeled with 'vertical tile hanging', 'clay peg tiles', 'new flat roof', 'new timber cladding', 'new timber-framed door and floor-to-ceiling window', 'new door', 'new glazed entrance', and 'SECTION THROUGH ENTERTAINMENT AREA'. The drawing is dated 04.01.2009.

[illegible]

Architectural floor plan of a three-story building renovation. The plan shows three floors: Ground Floor, First Floor, and Second Floor. The Ground Floor includes a new entrance, a new staircase, a new glazed entrance, a new timber-framed window with obscure glass, and a new rooflight. The First Floor includes a new staircase, a new timber frame wall, and a new rooflight. The Second Floor includes a new staircase, a new rooflight, and a new roof replacement. The plan also shows existing flat roof, roof replacement, and roof replacement areas. A north arrow is located in the top right corner.

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3. OVERVIEW OF EXISTING STRUCTURE

1. Existing External Brick Walls

The brick walls on the existing front (North East) elevation are of traditional solid wall construction, some bricks have paint residue over the exterior surface. The mortar appears to be cementitious, which forces the moisture to travel through the brickworks rather than the mortar which would typically be the sacrificial element. This causes the bricks to deteriorate.

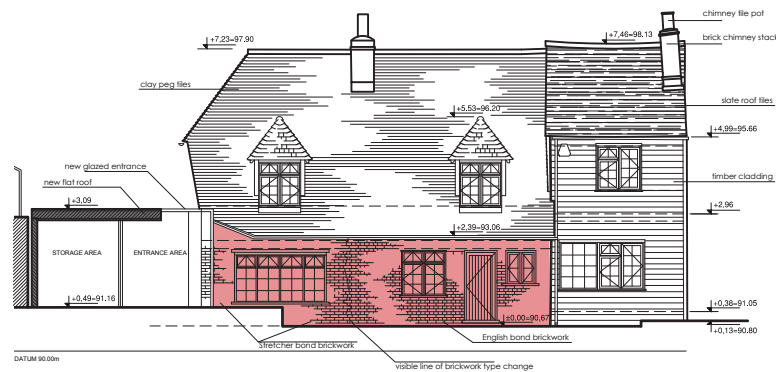


Fig. 8 - Proposed North East Elevation.

The bricks on the existing rear extension are in good condition generally, apart from the bricks adjacent to the cladded wall on the southwest elevation, which show sign of hygroscopic salts and erosion on some of the brick surface. This could be caused by the deterioration of the junctions between the two flat roofs which allow the ingress of rainwater, and/or the excessive amount of moisture within the solid wall behind the timber cladding transferring the moisture via capillary action. The flat roof has since been repaired/replaced which should be beneficial in protecting the long-term future of the brickwork.

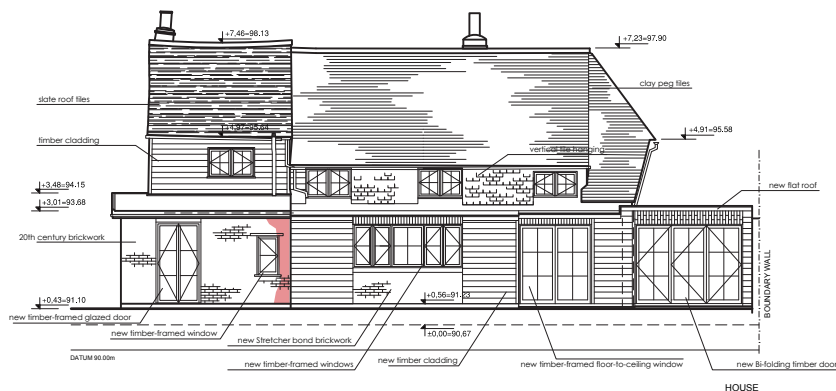


Fig. 9 - Proposed South West Elevation.

The bottom section of the brick work has also suffered from dampness due to a historically leaking drain pipe, which has since been fixed temporarily. The drain pipe is to be removed and new soil vent pipe is to be installed to serve the ground floor shower room and bathroom above.

2. External Timber Framed Walls

The timber featheredge boarding are to be inspected for defects that may have arisen from beetle infestation, fungal attack or splits due to corroding nails. Any defective boards to be repaired or replaced with boards to match the existing in every detail. All weatherboards which are in good condition are to remain in place.

The existing frame is not visible in its current appearance and is to be inspected for signs of rot and decay due to insect attack or moisture ingress.

3. External Tile-hanging

The vertical tile hanging is in overall good condition. The existing timber battens supporting the vertical tile hanging are to be inspected for signs of rot and decay because of moisture attacks or corroding nails.

In some locations where the cementitious mortar bedding starts to deteriorate and enable water penetration, the cement mortar should be raked out carefully and replaced by lime mortar.



Fig. 10 - Photo of the existing Old Forge.

4. Clay tile and Slate roof

There was historically an excessive growth of moss on the roof tiles and under the ridge tiles which has carefully been cleaned and removed with brushes. The existence of the moss indicates dampness issues which may be caused by the lack of ventilation beneath the roof tiles. It is likely that some of the timber batten behind the tiles are rotten, which should be carefully inspected with any rotten ones replaced.

A visual inspection of the roof covering reveals that several tiles are broken, slipped or missing, if continue to neglect it will encourage the ingress of rainwater.

Any cementitious torching and bedding to be removed carefully and replaced with lime mortar.

The timber roof structure is to be carefully examined for signs of rot and decay as a result of insect or moisture attack. Any rafters/ members that have shown signs of rot are to be noted and repairs made to them. These members will either be repairs, doubled, or replaced depending on the percentage of the decay. Replacement members will be of the same timber species and scantling as the member being replaced. All existing material that is structurally sound and in good condition will be retained.

5. Chimneys

There are three existing chimneys, which have been referred to as A, B and C.



Fig. 11 - Existing Ground Floor Plan.



Fig. 12 - Chimney A.

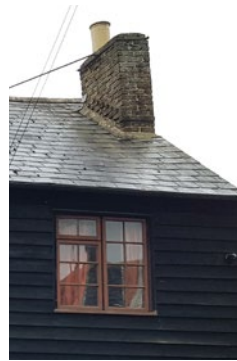


Fig. 13 - Chimney B.

Chimney A is located centrally within the plan of the property. As the photo shows there are some areas which are in need of re-pointing, from ground-level it is difficult to highlight the condition of the lead flashings and mortar may have been repointed in cement historically. No capping is present at the minute which leads to moisture ingress and potential for insect and water ingress. A ventilated cap would be of particular benefit to aid this. The condition of flaunching would be checked and repaired to match when suitable safe access is provided.

Chimney B is similar to chimney A in that it is in need of re-pointing. It appears to have been historically supported by metal supports appearing to be fixed to the ridge. The condition of flaunching would be checked and repaired to match when suitable safe access is provided.

Note: Stuart Little (Chartered surveyor) stated the following in relation to Chimney B - "Deflection in the right hand chimney stack suggests deterioration to the bedding mortar joints and lack of internal flue lining. The extent of this deflection is not yet significant but should be monitored."

Chimney C has been demolished in accordance with the previously approved consent.

6. Windows & Doors

The existing windows and doors are modern single-glazed additions which have minimal historic character/significance and does not contribute positively to the character of the heritage asset. They are in poor condition with instances of rotten cills and in general requiring overhaul and repair throughout.

However, due to previous refusals to replace existing glazing with double-glazed alternatives we have sought to make considered repairs to enhance the longevity of the windows rather than to replace.

7. Internal walls and ceilings

The Asbestos Refurbishment Survey identified the existence of asbestos concealed behind interior paints on the internal side of some of the external walls and underside of the ceilings. The majority of the asbestos found are chrysotile and have a score range of 4 / 5 - which are low risk and have low potential to release fibres if disturbed. The report recommended removing the asbestos.

As set out in the repair methodology section, one of the main goals of the repair is to enable the walls to breathe again and allow excessive moisture to escape from the building. The existing impervious internal wall plaster and paint should be carefully removed and replaced with lime plaster and breathable paints.

8. Pitched Roof Insulation

a. Insulation at ceiling level (Loft insulation)

The condition of the existing wool insulation should be examined for any signs of dampness, deterioration and life forms. Replace with new sheeps wool insulation if required.

b. Insulation at ceiling level (Loft insulation)

Under the main clay tile roof, the loft space is being used as a storage and place to accommodate the water tanks/cylinders. The insulation is installed at the rafter level.

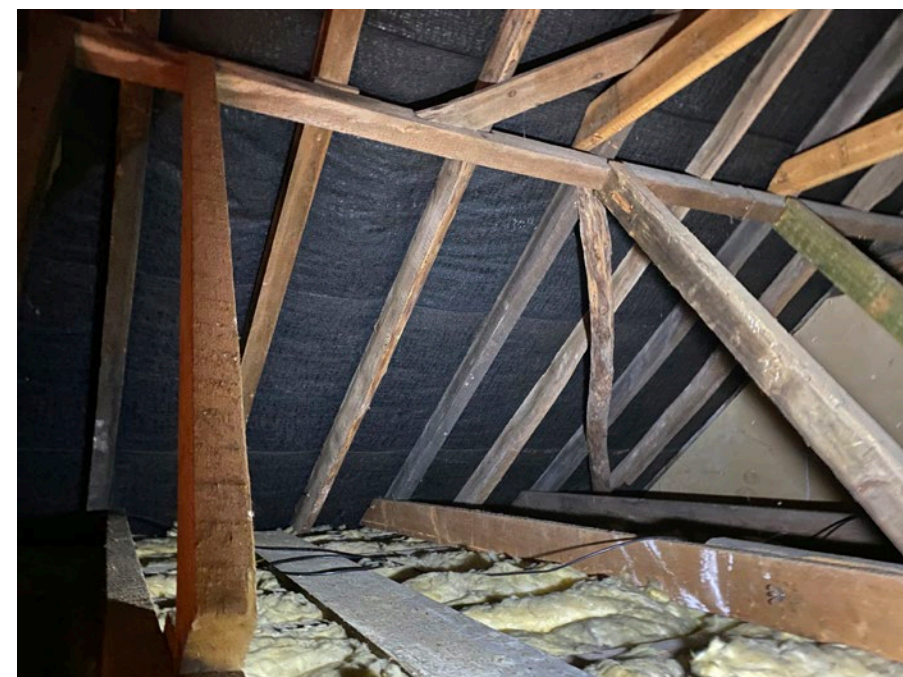


Fig. 14 - Photo of the loft space above the proposed bedroom 1.



Fig. 15 - Photo of the loft space under the main clay tile roof.

9. Ground Floor

The existing ground floor to the proposed Utility area is of concrete construction, which shows signs of dampness and has damaged the bottom of the walls in the area.



Fig. 16 - Photos of the existing ground floor.

10. Cellar

There is existing cement plaster and other modern finishes which affect the long-term protection of the future. As mentioned elsewhere cement-based plaster restricts the hygroscopic movement of moisture and as such can lead to damp and other deteriorative effects of timber etc.

11. Staircases & Landings

The existing staircases do not have rigid / safe guarding, which creates hazards for the habitants and visitors. The existing internal steps are also steep with uneven risers and are of modern brick construction presenting a poor/hazardous means of circulation around the building. Young and elderly people are especially vulnerable to the existing arrangement

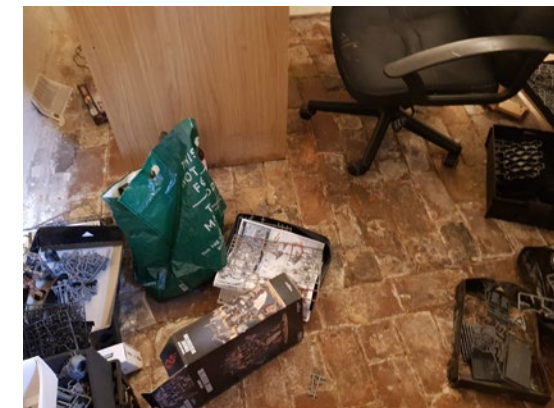


Fig. 17 - Photos of the existing cellar.

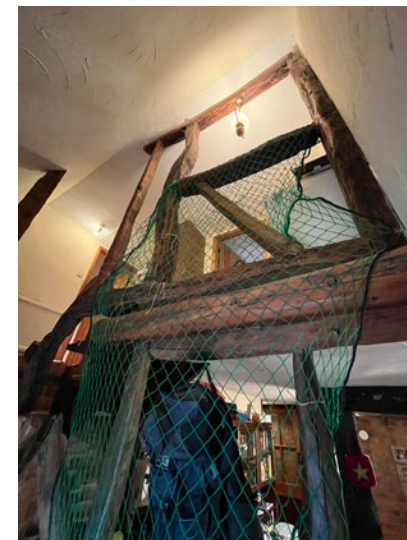


Fig. 18 - Photos of the existing stairs and landings.

12 Services - Electrical

The house is to be rewired by a specialist electrician who is experienced in working with historic assets and respects the historic character and fabric.

4. OUTLINE SCHEDULE OF REPAIR AND SPECIFICATION

1. Repair of External Brickwork

a. Replacement Bricks

The severely damaged bricks should be cut out and replaced with new handmade soft bricks that match the existing ones as closely as possible in size, colour, texture, durability, and hardness. The less eroded bricks should be carefully removed and where possible reversed to hide the decay. Where bricks are weathered but their condition could be determined as satisfactory, they should be left intact, and their condition carefully documented and monitored. In case there are bricks damaged while raking out the cement mortar, advice from the architect should be sought and decisions made accordingly. New bricks should be laid to align faces, angles and features.

Why are we not advising on using reclaimed bricks:

- i) salvaged bricks may be underfired and unsuitable for external work, or are sometimes damaged, stained or painted.
- ii) we don't know the overall properties and quality of the bricks, and especially having in mind the original soft bricks, the usage of much harder bricks will cause harm to the historic fabric.
- iii) Although new bricks should be easily distinguished after being placed, they will slowly weather and get the same appearance as the existing ones.

b. Sharp sand and Hydraulic Lime specification

The mortar is to be 1:3 mix NHL 2.0 : sharp washed local sand. Water to be added to the desired consistency. Pigments to be added, if necessary, in order to match colour of the historic brickwork joints. Work should start after a sample patch is considered acceptable by architects.

Clean, washed and kiln dried (also known as silver sand or block paving sand), free from all impurities to BS EN 12620:2013 or BS EN 12620:2002)

c. Preparation

The existing brickwork is in need of repointing. The existing cementitious mortar should be raked out to a depth at least twice the width of the joint; with the back of the cleared joint left as square as is practicable. To avoid damage to the bricks, the mortar should be raked out using appropriate hand tools – no powered tools such as a grinder may be used. All loose material from joints should be brushed away. The masonry must be thoroughly dampened with a hosepipe with a spray nozzle or a pump-action water sprayer, before placing the mortar.

d. Re-pointing of brickwork

The mortar should be packed firmly into the joint using a pointing iron after all the loose material has been flushed out and the joint wetted first to reduce suction. The inside surfaces of the joint need to be damp but not wet. Joints need to be thoroughly filled from the back and compacted to avoid voids and be built up in layers of around 25mm deep. The joint should be filled slightly proud of the intended finished level to allow for slight shrinkage and compaction of the mortar as it firms up. Any mortar that is smeared on the masonry should be sponged off with clean water before it has dried. The joints should be finished by hitting the mortar with a bristle churn brush with a firm pushing action. It is important that the mortar is sufficiently set before this action otherwise the brush will leave a series of pinholes in the mortar.

Once the re-pointing is underway it must be protected to avoid damage or rapid drying. Ventilated covers (i.e. multiple layers of hessian) must be placed and regular mist spraying may be needed to maintain damp conditions as the mortar starts to set. Additional plastic sheeting or tarpaulins draped in front of the hessian covers may also be needed if it is very windy or there is driving rain.

2. Repair of timber boarded walls

Any structural timber members showing signs of decay are to be noted with repairs where necessary. Any replacement timbers will be of the same timber species and scantling as the member being replaced. All existing material that is structurally sound and in good condition will be retained.

Replace existing insulation between timber studs with vapour permeable and hygroscopic insulation such as sheeps wool insulation.

Install / replace breather membrane between the insulation and timber cladding. The breather membrane should be installed with some 'slack' behind the cladding so it is not held tight to its back face which will allow any water that penetrates the cladding to run freely away down the face of the membrane without being redirected against the timber cladding.

Clean and remove the algae, cobwebs and dirt from the surface of the black timber cladding, followed by applying matt exterior paint on them to match the existing.

3. Repair of External tile-hanging

Any timber members showing signs of decay are to be replaced. All existing material that is structurally sound and in good condition will be retained.

The lime mortar should be packed firmly into the gap between the tile hanging and substrate using a pointing iron after all the loose material has been flushed out and the tiles wetted first to reduce suction. The gaps need to be thoroughly filled and compacted to avoid voids. It should be filled slightly proud of the intended finished level to allow for slight shrinkage and compaction of the mortar as it firms up. Any mortar that is smeared on the tiles should be sponged off with clean water before it has dried.

Once the re-pointing is underway it must be protected to avoid damage or rapid drying. Ventilated covers (i.e. multiple layers of hessian) must be placed and regular mist spraying may be needed to maintain damp conditions as the mortar starts to set. Additional plastic sheeting or tarpaulins draped in front of the hessian covers may also be needed if it is very windy or there is driving rain.

4. Clay and Slate roofs

a. Replacement battens

All new battens should be pre-treated against fungal attack. Battens to be fixed to the existing rafters with non-ferrous (e.g. stainless steel) ringed nails. Ensure the breather membrane is in good condition and draped properly, allowing air movement beneath the roof tiles. Replace the breather membrane if required. Install proprietary eave ventilators in strict accordance with the manufacturer's recommendation.

b. Replacement tiles

Reinstatement and replace the chipped tiles with matching new tiles and resecure the slipped clay tiles. New tiles should match the type, colour, texture, size and thickness of existing ones. Avoid using second-hand plain tiles from other buildings.

c. Replacement timber rafters/members

Any rafters/ members that have shown signs of rot are to be noted and repairs made to them. These members will either be repairs, doubled, or replaced depending on the percentage of the decay.

Replacement members will be of the same timber species and scantling as the member being replaced. All existing material that is structurally sound and in good condition will be retained.

5. Chimneys

There are three existing chimneys within The Old Forge.

a. Chimney A

Replace existing lead flashing with new ones, installed in strict accordance with Lead Sheet Training Academy's document 'Rolled Lead Sheet - The Complete Manual'.

The severely damaged bricks should be cut out and replaced with new handmade soft bricks that match the existing ones as closely as possible in size, colour, texture, durability, and hardness. The less eroded bricks should be carefully removed and where possible reversed to hide the decay. Where bricks are weathered but their condition could be determined as satisfactory, they should be left intact, and their condition carefully documented and monitored. In case there are bricks damaged while raking out the cement mortar, advice from the architect should be sought and decisions made accordingly.

The existing brickwork needs repointing in the same method that has been outlined for the external brick walls. Some of the deteriorated flaunching need replacing to shed the rainwater as originally intended. Carefully remove the loose parts of the flaunching and brush away any dirt and loose materials. If the cement flaunching is too hard to remove, leave it as it is to avoid damaging the brickworks. Apply lime mortar carefully using a pointing trowel, scrape away any excess mortar and follow the profile of the existing flaunching. When the mortar is leather hard, smooth it over with a wood float.

It must then be protected to avoid rapid drying and shrinking. Ventilated covers (i.e. multiple layers of hessian) must be placed and regular mist spraying may be needed to maintain damp conditions as the mortar starts to set. Additional plastic sheeting or tarpaulins draped in front of the hessian covers may also be needed if it is very windy or there is driving rain.

Install a proprietary terracotta flue vent terminal to reduce water penetration. Carry out a level 2 chimney inspection and sweep by a NACS qualified chimney sweeper.

b. Chimney B

Replace existing lead flashing and cracked cement mortar used around the abutment between the chimney and the slate roof tiles with new lead flashings, installed in strict accordance with Lead Sheet Training Academy's document 'Rolled Lead Sheet - The Complete Manual'.

The severely damaged bricks should be cut out and replaced with new handmade soft bricks that match the existing ones as closely as possible in size, colour, texture, durability, and hardness. The less eroded bricks should be carefully removed and where possible reversed to hide the decay. Where bricks are weathered but their condition could be determined as satisfactory, they should be left intact, and their condition carefully documented and monitored. In case there are bricks damaged while raking out the cement mortar, advice from the architect should be sought and decisions made accordingly.

The existing brickwork needs repointing in the same method that has been outlined for the external brick walls.

The deteriorated flaunching needs replacing to shed the rainwater as originally intended. Carefully remove the loose parts of the flaunching and brush away any dirt and loose materials. If the cement flaunching is too hard to remove, leave it as it is to avoid damaging the brickworks. Apply lime mortar carefully using a pointing trowel, scrape away any excess mortar and follow the profile of the existing flaunching. When the mortar is leather hard, smooth it over with a wood float.

It must then be protected to avoid rapid drying and shrinking. Ventilated covers (i.e. multiple layers of hessian) must be placed and regular mist spraying may be needed to maintain damp conditions as the mortar starts to set. Additional plastic sheeting or tarpaulins draped in front of the hessian covers may also be needed if it is very windy or there is driving rain.

Install a proprietary terracotta flue vent terminal to reduce water penetration. Carry out a level 2 chimney inspection and sweep by a NACS qualified chimney sweeper.

Install air bricks to provide ventilation to the chimney if not being used

c. Chimney C

Has been demolished as per the approved Planning Drawings.

6. Windows and Doors

Existing windows to be repaired as applicable with considered timber repairs. All windows and doors are to be re-decorated. Whilst the windows are modern additions - ensure that prior to removal of any windows, they are carefully recorded with photographs to identify and ensure that they can be re-installed correctly. Existing single-glazed windows will be supplemented using a combination of draught-proofing as well as the installation of secondary glazing.

New windows and strategy of replacement are highlighted within the appended drawings.

a. Repairs in General

Ensure that where instances of wet rot have occurred to cills, rails etc. they are carefully repaired using traditional carpentry techniques i.e splicing, mortise and tenon, dovetailing etc. Each window should be assessed on the repair necessary by the carpenter and the amount of repair will be subject to the extent of the decay.

The repairs are like to be weakest points and may move at different rates compared to the existing seasoned timber so please ensure that consideration is given to the movement of materials and work with matching timber species.

Where broken glass requires replacement, ensure that matching glass, finish, colour and thickness are used.

Resin repairs may be necessary to address minor areas of decay subject to carpenters assessment.

b Draught-proofing

The existing windows have not been draught-proofed and this represents an area where significant heat-loss occurs. Generally, the approach will be to utilise non-invasive methods such as self-adhesive strips however this should be assessed on a window-by-window basis following the completion of all repairs.

The windows are modern in nature and routing/grooving a thin strip to draught-proof is considered to have minimal impact on the character of the building and windows whilst not impacting the overall significance of the building.

c. Re-decoration

Following testing/confirmation that there are no lead-based paints used - which may be unlikely given the modern character of the windows. Please note, that lead-paint is hazardous to health and may pose a risk to workers. However adequate precautions to be taken.

Remove loose or defective paint and rub-down (using wet abrasion) all exposed surfaces following repair to provide a key for new paint to bond. Ensure that surfaces are clean-dry prior to painting and ensure that a suitable primer, undercoat and finish coat are applied in accordance with manufacturer recommendations.

Use a suitable paint system such as Linseed Oil based paint system in accordance with manufacturer recommendations. Finished colour to be white for all windows and a black painted finish to the front entrance door.

d. New windows and doors

The new windows and doors should aim to improve thermal comfort and provide adequate background ventilation, while not to harm the character of the historic property. New windows and doors are to be single-glazed to match the existing to avoid the detrimental impact of double-glazing as highlighted in previous refused applications.

New windows and doors to be (painted) Sapele or Accoya. Detailing of the new windows and doors are being discharged as part of this application to address Condition 3.

7. Internal walls and ceilings

The existing impervious internal wall plaster and paint should be carefully removed and replaced with lime plaster and breathable paints.

The building owners would also want to improve the energy efficiency of the historic building for the benefits listed below:

- Lower carbon emissions and fuel bills.
- Increase thermal comfort.

A balance should be struck that the characters and appearance of the Listed Building and Hook Green Conservation Area would be protected and maintained, while the thermal efficiency of the building fabric is being upgraded. It is crucial to avoid unintended consequences such as moisture accumulation, overheating, worsening indoor air quality and fabric damage.

Taking the above into consideration, it is proposed to -

- Carefully remove asbestos by experienced specialists.
- Carefully remove impermeable internal plaster and wall paint.
- Install wood-fibre tongue and groove insulation board internally to external walls.
- Apply lime plaster finished (or lath and lime plaster at ceilings) with breathable paint.

Characteristic building features such as the original timber frames should not be covered and will remain exposed.

Please Note : In the Design, Access & Heritage Statement accompanying the original permitted planning applications (ref: 20200654 & 20200655), it was proposed to paint interior walls with breathable linseed oil paints or using limewash. However, the installation of internal insulations and removal of asbestos were not part of the original planning applications, therefore, a separate listed building consent application has been submitted to seek approval from the local planning authority.

8. Pitched Roof Insulation

Please Note: The installation of roof insulation was not part of the original planning applications. A separate listed building consent application has been submitted to seek approval from the local planning authority.

a. Insulation at ceiling level (Loft insulation)

Install insulation between the ceiling joists and extra layers of insulation above and perpendicular to the joists. The overall thickness of the insulation should be approximately 300mm.

The sheep's wool insulation should be fitted tightly between the ceiling joists to avoid gaps and cold bridges. Seal cracks and gaps around services to prevent infiltration of moist air from below.

The insulation should lap over the head of the external walls at the eave junction, or have an upstand of approximately 225mm above the top of loft insulation against the gable walls to minimise thermal bridgings. Maintain eaves ventilation by placing proprietary spacers to provide a 25mm minimum ventilation gap at eaves.

b. Insulation at ceiling level (Loft insulation)

Replace the existing insulation between the rafters with sheep's wool insulation such as Thermafleece and install an extra layer of wood-fibre tongue and groove insulation board below the rafters, followed by applying breathable lime plasters.

Ensure the gaps between the rafters and the insulation are kept to a minimum as the gaps can result in air infiltration. A 25mm gap will be left between the top of the insulation and the top of the rafters which will allow the breather membrane to drape between the rafters.

Why is Historic England not advising on using vapour barriers, as quoted from their guidance 'Insulating Pitched Roofs at Rafter Level':

Whilst the installation of vapour barriers to control condensation within the insulation and associated structures is theoretically effective, it is in reality very difficult to install them in historic buildings -
i) Where the insulated roof slope abuts permeable construction, the vapour barrier will be easily by-passed causing increased condensation and potential damage.
ii) Where there is a risk the vapour barrier may be punctured in use. Where punctures occur, condensation and consequent damage will normally occur within the historic construction this exposes.

9. Ground Floor

A damp proof membrane is to be installed above the existing concrete slab before laying the underfloor heating system and new flooring. The moisture can be driven into the walls, hence, it is important to have the floor's damp proof membrane and wall's damp proof course lapping over each other.

The underfloor heating system and new floor tiles are also to be installed to the proposed kitchen and garden room.

10. Cellar

Remove cement plaster and other late finishes from the walls and ceiling and replace them with lime plaster (or lath and lime plaster at the ceiling) and limewash finish.

11. Staircases & Landings

New guardings such as very simple slimline back steel balustrades with railings are to be installed

to the staircases and landing.

12 Services - Electrical

All wiring and electrical work is to be designed, installed, inspected and tested in accordance with the requirements of BS7671, the IEE 16th Edition Wiring Guidance and the Building Regulations Part P (Electrical Safety) by a person who is a member of the Competent Persons Scheme authorised by the Secretary of State.

13. Services - Heating and Hot-Water

The heating and hot water system, including a new boiler is to be designed and installed by a heating and plumbing specialist. All work is to be designed and carried out in accordance with the Domestic Heating Compliance Guide.



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