

**STRUCTURAL APPRAISAL OF GARDEN STRUCTURES**

**OWLETTS, COBHAM, KENT  
FOR  
THE NATIONAL TRUST**

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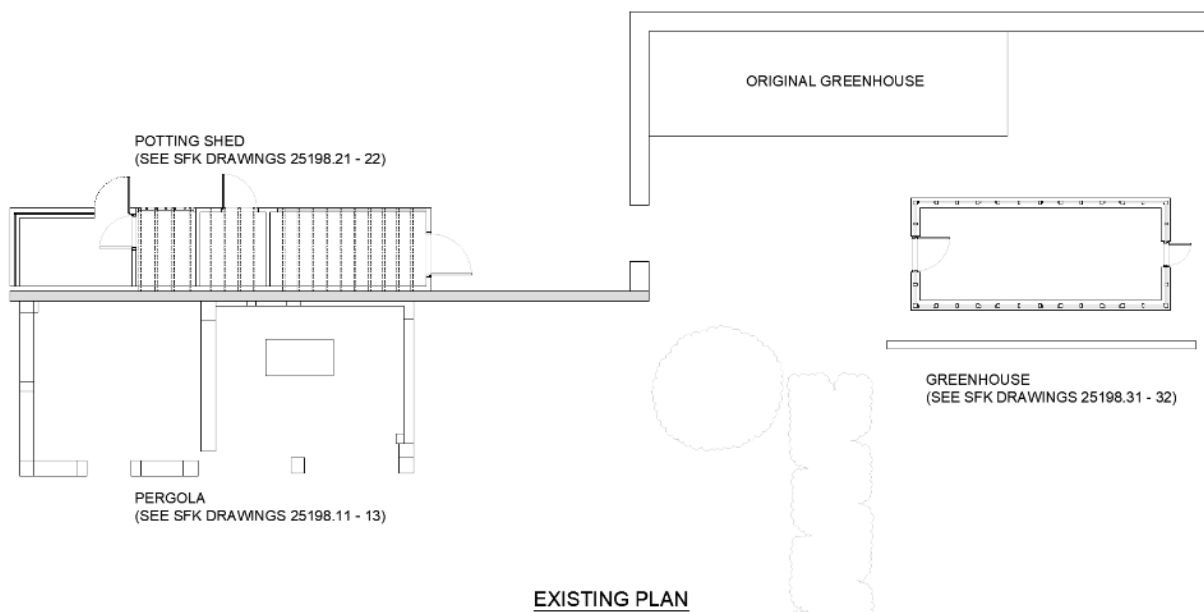
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## 1. INTRODUCTION

SFK Consulting was appointed by The National Trust as Structural Engineers to review the structural implications of undertaking repairs to certain garden structures at Owletts, The Street, Cobham, Kent.

An inspection of the garden structures was undertaken by Mr. G. Wood of SFK Consulting on 23<sup>rd</sup> January 2026.

The purpose of the inspection was to enable this structural appraisal to be written, which will be used to support a listed building consent application.



## 2. BRIEF DESCRIPTION

### 2.1 Listing Description for Owletts

#### Official List Entry

Heritage Category: **Listed Building**  
Grade: **II\***  
List Entry Number: **1049097**  
Date first listed: **27-Aug-1952**  
List Entry Name: **Owletts**  
Statutory Address: **Owletts, The Street**

#### Location

Statutory Address: Owletts, The Street

The building or site itself may lie within the boundary of more than one authority.

County: Kent  
District: Gravesham (District Authority)  
Parish: Cobham  
National Grid Reference: TQ 66510 68734

#### Details

TQ 66 NE COBHAM THE STREET 5/30 (north side)  
27.8.52 Owletts  
II\*

Built in 1683/4 by Bonham Hayes. Red brick, moulded brick string course. Panelled parapet added C18. Steeply pitched hipped tiled roof. Narrow end bays project to form closets. Slight central projection. Seven sash window and 3 dormers. Modern porch with re-set panelled door. Engaged Doric columns, pediment and semi-circular fanlight. Two steps with wrought iron handrails. Two massive, panelled chimney stacks dated 1683. Lead downpipes with heads inscribed G.G.1754. Three sash windows and 2 dormers to east and west facades. Large modern single-storey bay to east. Central projection to north façade marking staircase with 2 tall “criose” windows with leaded lights and 3 ox eye windows above.

## 2.2 Description of Structures Inspected

### 2.2.1 General

The structures inspected are all located approximately 40m to the south-east of The Main House, which is grade II\* listed. The structures are for the sake of this report considered to be curtilage listed. This should be checked with the local Conservation Officer.

### 2.2.2 Garden Wall

The garden wall in question is approximately 3.25m high. It is 335mm thick at its base and reduces in thickness with the top 700mm being 215mm thick. To the north side the wall forms the rear wall of a potting shed. To the South side the wall supports a timber pergola which has partially collapsed. An additional skin of brickwork has been partially added to this side of the wall presumably as part of works in the past, to install the pergola.



### 2.2.3 Pergola

A timber pergola formed in 150 x 150mm beams overlaid with 100mm wide x 70mm deep timbers at 680mm centres, supports a large wisteria.

A large section of the Pergola has collapsed, and the remaining beams have deflected significantly with one further timber soon to fail.



#### 2.2.4 Potting Shed

The potting shed runs along the North side of the wall for approximately 10m. It has a mono-pitch roof that extends, to within 350mm of the top of the wall. The pitched rafters span the full width of The Potting Shed (2m) and rest on the external wall of either brickwork or timber framed glazing.



The roof has no waterproof covering at present, and battens suggest that it was once finished in clay tiles. The timber rafters are 100 x 50mm timbers at 380mm centres.

At the garden wall end the bearing to the rafters has rotted causing the roof to drop and push out. This has caused the external wall to push outwards. At the eaves, many rafters do not reach the wall. Most of the softwood rafters are suffering from a combination of wet rot and have significant beetle infestation.

### 2.3 Greenhouse

A modern Greenhouse is located within the walled garden, situated less than 2m from an historic glass house built into the garden wall.

The Greenhouse has significant wet rot at the base of the timber posts, and the exposed top surface of the rafters is also suffering from wet rot.

It was not possible to enter the Greenhouse due to safety concerns expressed by the National Trust.



### 3. INSPECTION FINDINGS

#### 3.1 Garden Wall

On the north side of the wall, (the potting shed side) the wall east of the potting shed is in good condition.

Within the potting shed the wall requires localised and some repointing in a lime mortar. There is an old flue formed within the wall midway within the potting shed. This requires some localised brick repairs to reinstate collapsing walls.

At the western end, beyond the potting shed the top 17 courses are in poor condition and require repairs comprising consolidation of the brickwork and repointing using lime mortar.



On the southern side of the wall (The pergola side) the western end is in poor condition. It was noted that the timber plate supported on the wall originally relied upon iron brackets built into the wall. These have corroded and have caused jacking of the top course of brickwork, leaving a significant horizontal crack. Corrosion jacking will continue unless the iron components are removed from the wall. It is recommended to remove the iron and re support a new timber plate with stainless steel fixings to the wall.

The brickwork facing added to the wall is in poor condition. It appears that the brick used was a soft brick and the face has eroded badly, most likely exacerbated by the

use of an inappropriate mortar. Whilst this is in poor condition and could be improved this is not a priority from a structural point of view, and could be left as it is for now.



East of the pergola the wall is in reasonable condition, but the joints require raking out and repointing across the full height of the wall.

There is vegetation growing within the wall on the southern side that should be carefully removed, including all roots. This may require some localised rebuilding of the wall.



### 3.2 Pergola

The pergola has partially collapsed, and the standing sections are close to collapse. The reason for collapse is likely to be the rot within the timber causing a significant weakness. The section size of the main timber beams is relatively small for the span. The capacity of the beam has been estimated to be 16kg per square metre. The Wisteria has become very large, and presumably it will do so again so we recommend increasing the size of main beam slightly to 200mm x 200mm. This will more than double the capacity and reduce excessive deflections. The rails between the beams could remain 100mm wide by 75mm deep but should also be lin oak to improve longevity.



### 3.3 Potting Shed

The potting shed roof requires replacement. The existing softwood rafters are beyond reuse, due to either decay, infestation. In some cases, the rafters do not reach from the brickwork wall the external wall due movements affecting the geometry. It is recommended that timber rafters are replaced on a like for like basis. If they are to be exposed consideration could be given to using Douglas Fir sections which will give a like for like appearance.



A new timber supporting plate should be fitted at the top of the brickwork wall to support the rafters ends. Given its vulnerability to damp ingress through the wall, consideration should be given to this element being in oak secured with stainless steel fixings. An alternative might be to use Douglas Fir with a damp proof material placed between the timber plate and the brickwork.

The northwest end wall has dropped relative to the main brickwork wall. This appears to have been caused by a rotten softwood post end which is supported on a square tapered staddle stone. The wall is 100mm thick brickwork largely supported of a timber frame and has wide joint with the main wall, caused by the movement. Given the wall is only half brick thick effective repairs are difficult. It is recommended to carefully take down the brickwork, form a new timber post in oak and rebuild the wall in the existing bricks in a lime mortar. This also gives the opportunity to repair the supporting timber frame should this prove to be necessary once all its surfaces are exposed.



One cross wall has a significant vertical crack approximately 300mm from the external wall. The crack is approximately 20mm wide at the top to zero at the bottom of the wall. The most likely cause of this crack is the roof spreading as a result of loss of support at the top of the main wall. This crack requires repair by locally stitching in new brickwork to match existing and inserting stainless steel helifix bars in the bed joints, to every third joint.



### 3.4 Greenhouse

The greenhouse has significant wet rot at the base of the timber posts, and the upper surface of the rafters are also suffering wet rot. To make this area safe the glass needs to be completely removed. It is likely that timber repairs are such that the timber frame will need to be dismantled. Given that this is a modern structure we would recommend fully dismantling it.



**APPENDIX A DRAWINGS**