Steve Gilman Design Ltd
Consulting Structural & Civil Engineers

Bridge House

Northgate

Pinchbeck

Visual Structural Inspection and Report

Project No. 9116

October 2023

SCI Member

TIMBER DEVELOPMENT UK MEMBER

The Institution of StructuralEngineers

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Registered in England. Registration Number: 5337463 V.A.T. Registration Number: 852 7676 88

1.0 Introduction

1.01 Further to instructions received from Oakland Homes, Steve Gilman Design Ltd undertook a visual structural inspection of the derelict dwelling at Bridge House, Northgate, Pinchbeck on 9th October 2023.

1.02 The purpose of the inspection and report was to comment upon the present structural condition to supplement a pending planning application for a replacement dwelling.

1.03 Our report is based only on the day's inspection and no monitoring, testing of materials or further investigations have been undertaken.

1.04 We have not commented specifically upon damp, condition of timber, and drains: specialist advice should be sought on these aspects if necessary.

1.05 We estimate that the property was constructed late 19th Century.

1.06 There is vehicular access into the site from the south off Northgate road.

The appended Architectural site plan, trial hole sketch and photographs assist to describe the building and our observations.

2.0 Building Description

2.01 The building is a two storey, three bedroom detached residential dwelling. A single storey lean to storage area has been constructed to the northern gable, no access was available. The main roof is duo-pitched with gable ends; the roofs are traditional construction with purlins, collar ties supporting rafters and covered with slate tiles. External walls are a combination of solid 13" and 9" brickwork constructed in English garden wall bond; large areas have been covered with a thin render layer. No damp proof course was evident. Internal ground floor load bearing walls are brickwork. Non-load bearing ground and first floor walls are brickwork and timber studwork. Ground floors are constructed as ground bearing concrete.

2.02 All doors, windows and lintels are timber and arched brickwork; rainwater goods are uPVC and cast iron. Gutters are supported off brackets fixed to the timber fascia boards.

2.03 The building is surrounded by grass and trees to the north, east and south, and outbuildings and hardstandings to the west. Agricultural land is present to the north beyond Northgate road and the River Glen is beyond the southern boundary.

2.04 The site topography is relatively level with an estimated average of 3.30 metres AOD.

3.0 Ground Conditions

3.01 The British Geological Survey 10-mile map of the area indicates that the underlying solid geology comprises Oxford Clay formation (mudstone), with overlying Tidal Flat Deposits (clay and silt) superficial deposits.

4.0 External Observations

North Elevation

4.01 No access was available due to the presence of a large Ash tree and densely populated smaller species of trees. **Photograph 1.**

4.02 The single storey storage area is just visible behind the trees and ivy. **Photograph 2.**

East Elevation – Photograph 3

4.03 We noted areas of damp, eroded and spalled brickwork at low level. **Photographs 4, 5 & 6.**

4.04 A trial hole was excavated to expose foundation and subsoils (refer to appended trial hole log for description). **Photograph 7**.

4.05 We noted cracking within the brickwork between the ground floor and first floor windows. **Photograph 8**.

South Elevation

4.06 We noted a full height staggered vertical crack and several horizontal cracks within the gable end. Eroded, spalled and crumbling brickwork was noted. The gable wall is not plumb and an outward bulge in the centre of the wall was evident. The chimney has been reduced in height. **Photographs 9, 10, 11 & 12**.

4.07 A trial hole was excavated to expose foundation and subsoils. **Photograph 13**.

West Elevation – Photograph 14

4.08 The chimney stack appeared to be out of plumb and leaning inwards towards the roof. **Photograph 15.**

4.09 We noted extensive areas of damp, eroded and spalled brickwork. **Photographs 16, 17 & 18**.

4.10 A trial hole was excavated to expose the foundations and subsoils. **Photograph 19**.

4.11 The rainwater downpipe is missing.

4.12 We noted undulations and bowing within the ridge line and slate tiles have slipped and are loose.

5.0 Internal Observations

5.01 Viewing from the loft access hatch in the landing, the roof construction was noted. Purlins are tied and supported by mid-height collars. **Photographs 20 & 21**.

5.02 The first floor ceiling finishes are in poor condition throughout, plaster had broken away leaving exposed laths. **Photographs 22, 23 & 24**.

5.03 Cracking in the external eaves wall to the Bathroom was evident. **Photograph 25**.

5.04 Cracking in the external north gable Bedroom wall was evident. **Photograph 26**.

5.05 We noted full height cracking in the corner of the chimney stack to the south east. **Photograph 27**.

5.06 Random cracking in the ceilings and walls was evident throughout the ground floor. **Photographs 28 & 29**.

5.07 We noted that the first floor was unlevel in the northern Bedroom and sloped towards the centre of the building. Random cracking was evident in the concrete ground floors.

6.0 Conclusions & Recommendations

6.01 Following our inspection it is clear that the building has been neglected over recent years and the main building fabric is in poor condition. The roof displayed movement and bowing as the purlins are not supported vertically (just merely tied), so would need to be replaced or strengthened. Ceilings will need to be repaired to receive new finishes so it is likely that the roof would need to be removed. Internal masonry partitions are built off the first floor joists which are not likely to be suitable by modern standards to support these loads and deflections were noted. Ground floors have cracked and damp was noted: these would need to be replaced. Due to the presence of trees and shrinkable subsoils influencing the type of ground floor, the new floors should ideally be suspended beam and block to provide a clear void below to allow for shrinkage and heave. The external brickwork has suffered extensively from ground movement and weathering: the rendering would need to be removed, allowing the brickwork to breathe. This may cause damage to the already fragile brick face.

Foundations are formed at a shallow depth and to reduce the risk of further movement would need to be underpinned to a minimum depth of 1.0 metres, this depth would increase significantly to the northern gable where the mature Ash tree

is present. Following NHBC guidelines the underpinning may comprise piles and reinforced concrete needle beams.

6.02 From our visual inspection of Bridge House, Northgate, Pinchbeck, we support the application of the replacement dwelling on the grounds of Health and Safety and economics: a new dwelling can be safely constructed to modern standards including enhanced thermal and damp proofing characteristics to ensure compliance with the Building Regulations.

Andrew Foottit I.Eng, A.M.I.Struct.E.
For and on behalf of Steve Gilman Design Ltd

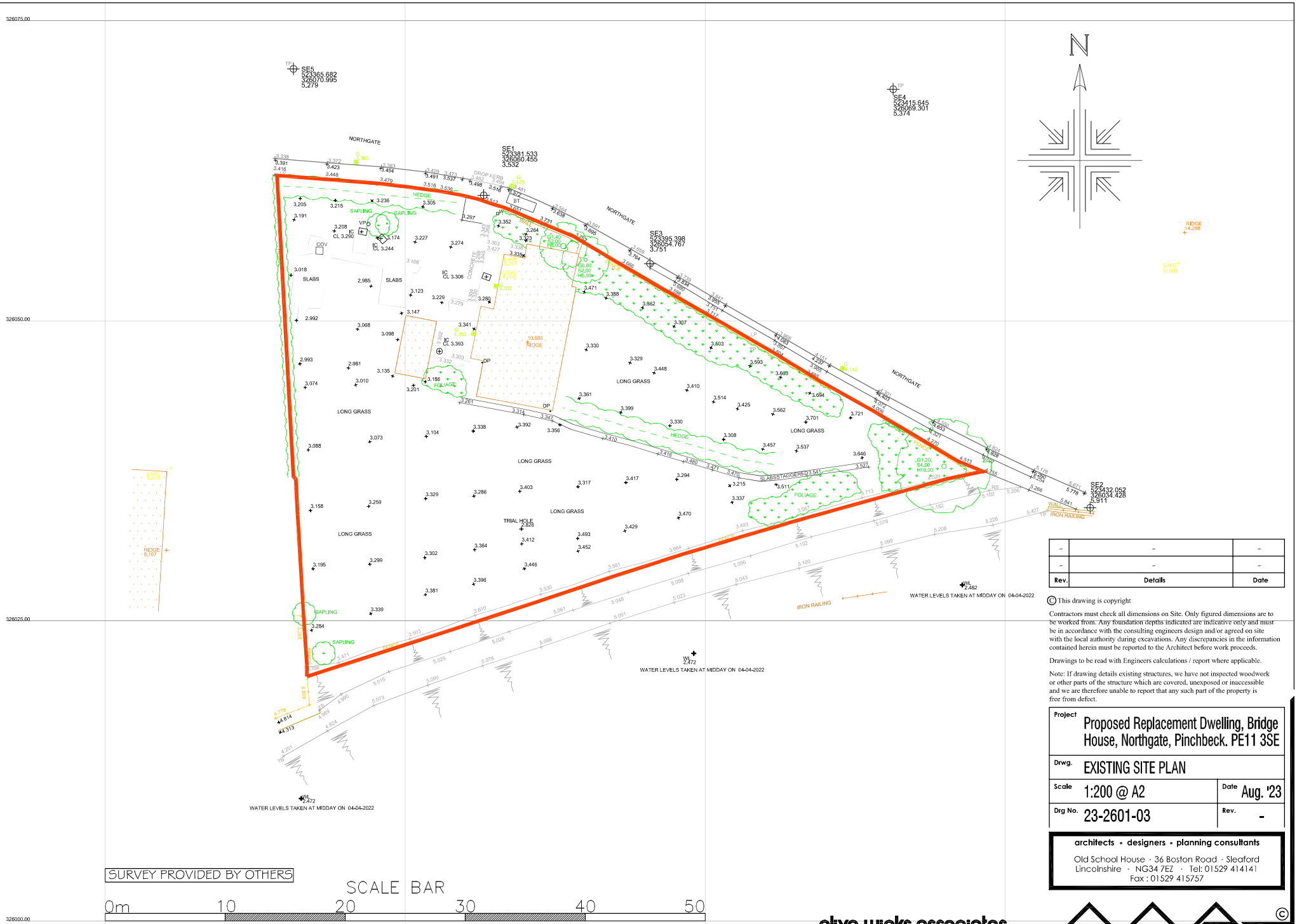
Date: 16th October 2023

Appendices

Appendix 1

Drawing

Clive Wicks Associates – Drawing No 23-2601-03 – Existing Site Plan



-	-	-
-	-	-
Rev.	Details	Date

© This drawing is copyright

Contractors must check all dimensions on Site. Only figured dimensions are to be worked from. Any foundation depths indicated are indicative only and must be in accordance with the consulting engineers design and/or agreed on site with the local authority during excavations. Any discrepancies in the information contained herein must be reported to the Architect before work proceeds.

Drawings to be read with Engineers calculations / report where applicable.

Note: If drawing details existing structures, we have not inspected woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.

Project	Proposed Replacement Dwelling, Bridge House, Northgate, Pinchbeck. PE11 3SE		
Drwg.	EXISTING SITE PLAN		
Scale	1:200 @ A2	Date	Aug. '23
Drg No.	23-2601-03	Rev.	-

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©

Appendix 2
Trial Hole Plan

Steve Gilman
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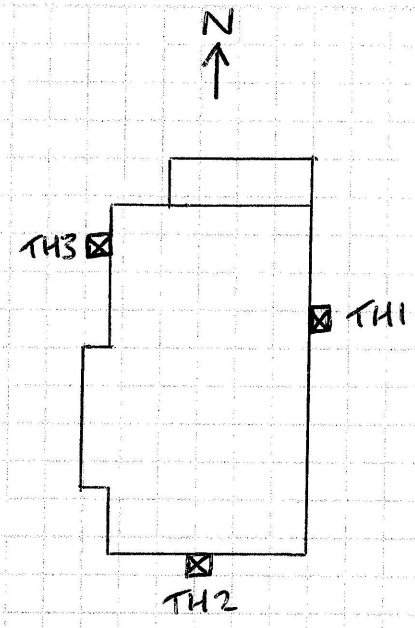
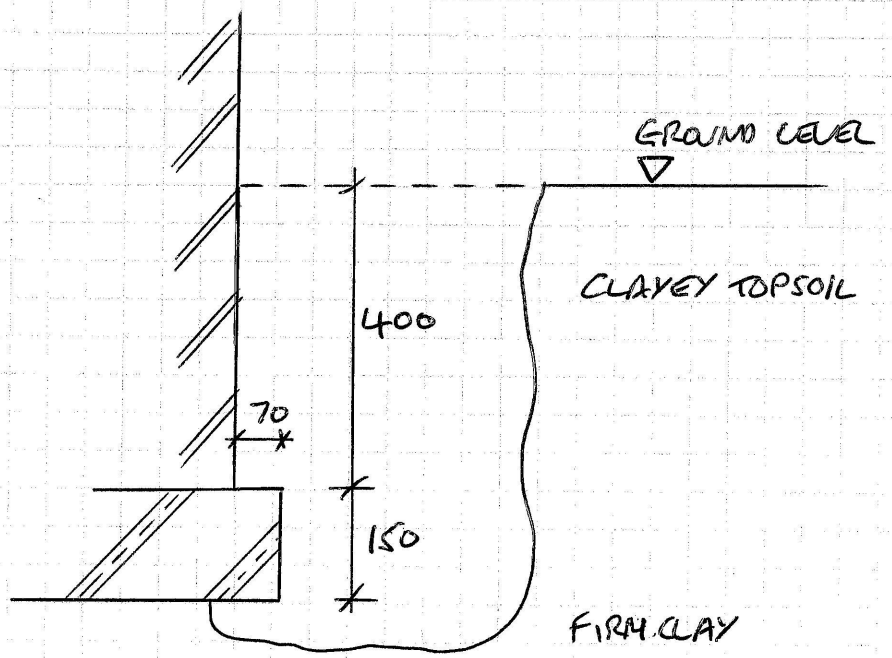
Project No.
9116
Sheet No.
TH
Date
OCT 2023
Prepared
AMF
Checked

Project Title
BRIDGE HOUSE, NORTHGATE, PINCHBECK



TRIAL HOLE LOCATION PLAN - NOT TO SCALE



TRIAL HOLE 1 (TH2 & 3 SIMILAR)

Appendix 3
Photographs

Photograph 1

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Photograph 6

Photograph 7

Photograph 8

Photograph 9

Photograph 10

Photograph 11

Photograph 12

Photograph 13

Photograph 14

Photograph 15

Photograph 16

Photograph 17

Photograph 18

Photograph 19

Photograph 20

Photograph 21

Photograph 22

Photograph 23

Photograph 24

Photograph 25

Photograph 26

Photograph 27

Photograph 28

Photograph 29