

AJP/23/057  
20 July 2023

**Garnhams Farmhouse, Tannington.  
Engineers Report.**

**Survey Data. (see data sheet SD1)**

The following structural defects have been noted.

- a). The floor beam connection to post has pulled away and the post foot and plinth lean outwards. The plinth cill board tips outwards.



- b) Sole plate rotated outwards. Post foot decayed. Render cracking



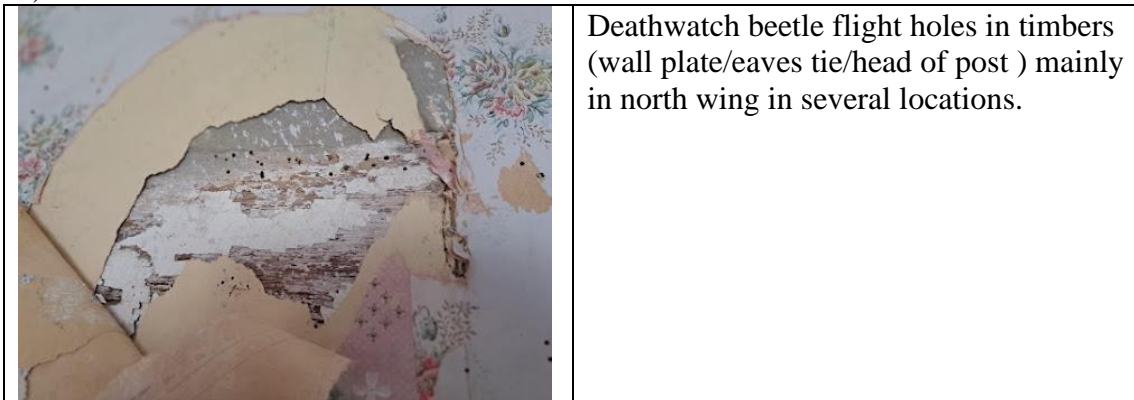
c) Rainwater ingress at base of valley. Wall plate/rafters/post decayed.



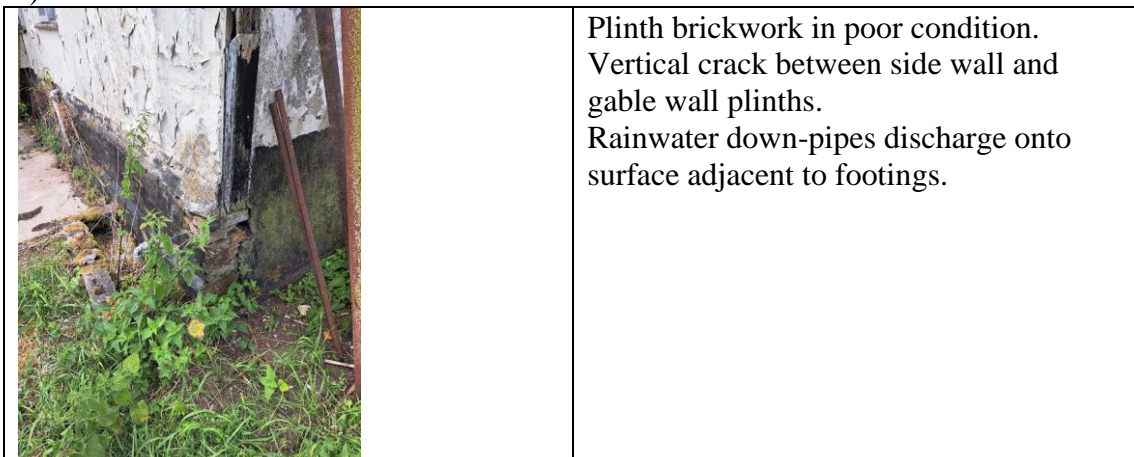
d) Diagonal crack in external wall at both ground floor & 1<sup>st</sup> floor level.



e)



f)



g)



Vertical crack between lean-to extension and 2 storey extension. Crack open at top.

h)



Render generally suffering minor cracking/detachment. Cement render.

j)



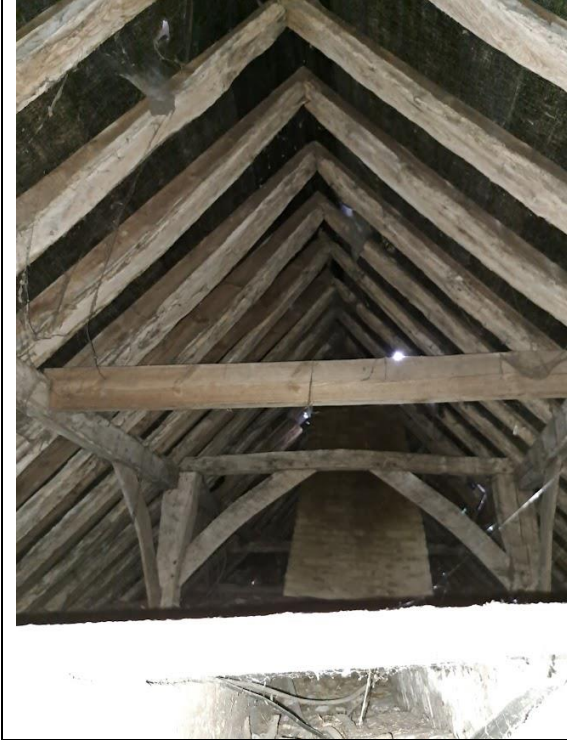
Old vertical crack in side of chimney.

k)



Joist decayed. Furniture beetle attack. Timbers painted black may conceal further decay.

l)



Roof structure has restricted access. No access to east wing roof. Timbers appear sound and well proportioned where visible.

### **Trial Holes & soil conditions.**

The trial holes reveal traditional shallow brick footings to the main parts, founded at depths of between 0.3-0.45m below ground level in sandy clay subsoil. The later south extension (TH3) has a shallow concrete strip footing founded at 0.45m depth. Probe tests indicate that the soil adjacent TH3 is relatively soft at depths between 0.6-1.0m below ground level.

## **Comments/Remedial Work.**

The building is in need of a general program of re-furbishment having been neglected for a long period of time. The following specific structural work will be required;

- a) The beam/post connection will require strapping in order to both improve the vertical support for the beam and prevent further outward movement of the wall. The outward leaning plinth required further investigation to check for sole plate decay. Remedial action such as buttressing of the plinth or local re-building may be necessary.
- b) c) & k) Decay timbers should be cut back to sound and replaced with new timber (probably green oak) to match using traditional scarfed or lapped joints.
- d) & g) Cracking of plaster/render is associated with differential foundation movement. It is likely that foundations at the north end have been influenced by vegetation growing close to the building. The probe test at MP2 also revealed relatively soft soil extending beneath the footing. The degree of movement is not excessive and it is likely that the clearance of overgrown vegetation along with improvement of rainwater drainage will reduce movement to acceptable levels. We can't be sure that further movement will not cause slight cracking of finishes without long term monitoring, but the need for improvement of foundations is currently not proved.
- e) The deathwatch beetles do not appear to have caused structural weakening of timbers. Testing with a steel point indicates that the timbers remain generally sound, but deathwatch can eat out the heart of a section while leaving the surface intact. Hence further inspection by specialists to check for live activity and drilling to check for decay at depth is recommended.
- f) Local repair of plinth brickwork is required. Traditional brick repairs using lime mortar and bricks to match.
- g) See d) above
- h) The cement render is relatively rigid on the flexible timber structure. Replacing with a softer lime render is recommended. That will also give access to the outer face of timbers for treatment/repair.
- i) Not used
- j) The old chimney cracking is relatively minor and occurs at a common position between flues. Cracks should be stitched using traditional techniques.
- k) The restricted roof access should be improved for thorough inspection of the roof timbers, but the initial restricted inspection indicates timbers are sound.

## Summary.

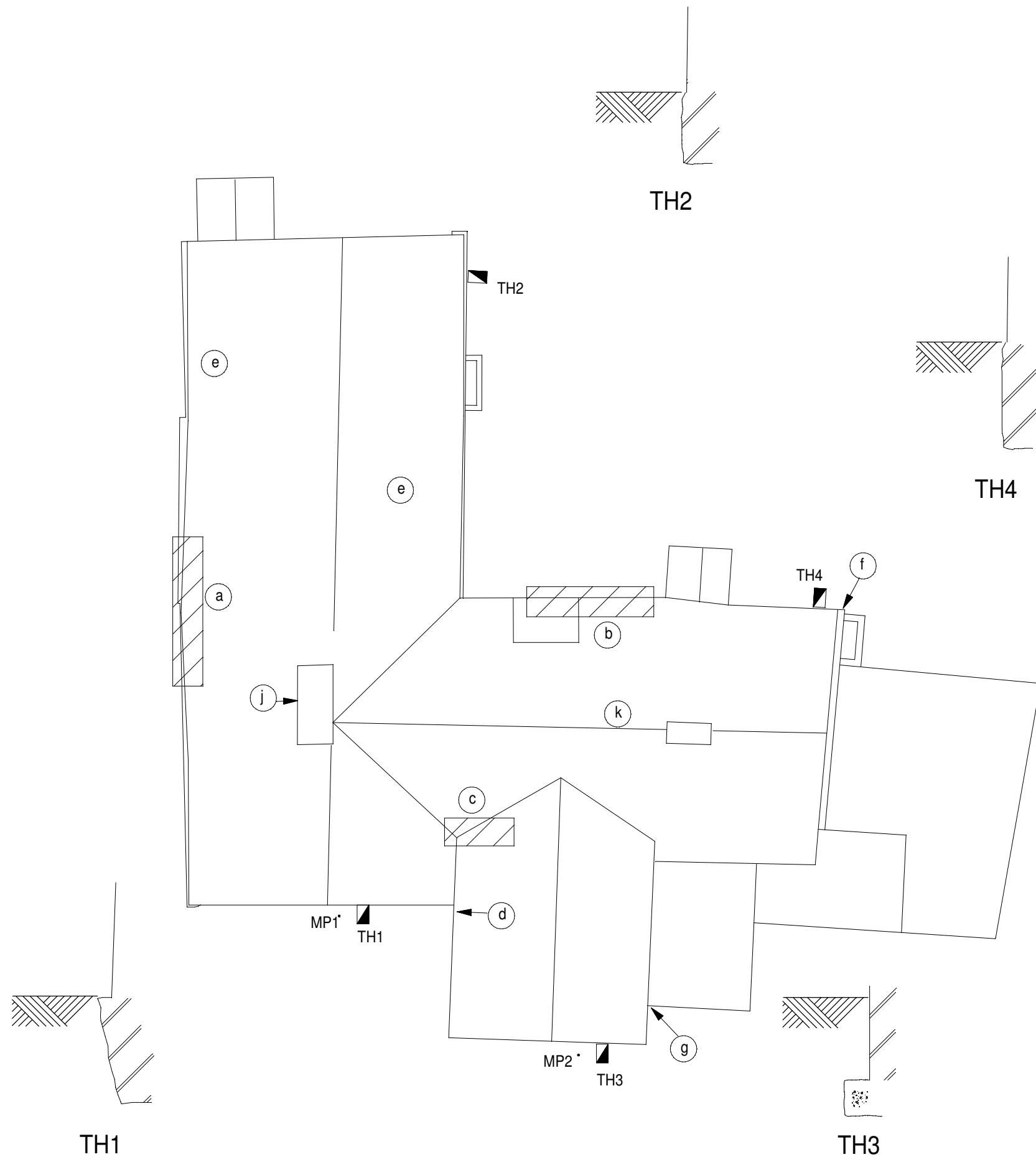
- The historic timber structure is generally in sound condition and can be restored with local repairs to replace excessively decayed timbers.
- Some foundation movement has occurred. Improvements of drainage to take rainwater away from the foundations and removal of overgrown vegetation is recommended. Some further slight movement may occur, but foundation improvements are not essential.
- Local repair of brickwork is required including the plinth at f).
- Further investigation of the plinth/sole plate at a) is required and the plinth likely to require improvement.
- Further investigation of the roof structure and of the deathwatch beetle infestation is recommended.



**Adam Power C.Eng MICE.**

Mackintosh Probe results

Depth	MP1	MP2
0.1	6	7
0.2	15	20
0.3	22	14
0.4	28	16
0.5	29	12
0.6	27	9
0.7	16	6
0.8	14	5
0.9	20	7
1.0	26	22



Rev	Date	Desc	
<p><b>ADAM POWER</b> ASSOCIATES Consulting Civil/Structural Engineers</p> <p>Church Farmhouse, The Green, Banham. Norfolk NR16 2HW tel: 01953 660281 email: adam@adampower.co.uk</p> <p><i>Drawn By: AJP</i></p>			
Title.		Garnhams Farmhouse, Tannington Survey Data	
For.		Braiseworth Hall Farms	
Job No.	Drg. No.	Scale	Rev.
23/057	SD1	1:100 & 1:20 @ A3	