



CIVIL & STRUCTURAL
CONSULTING ENGINEERS

10 Linleys

Structural Survey Report

For

Matt Bollen

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1.0 Introduction

M² Civil and Structural Ltd. was commissioned by Mr. Bollen to undertake a visual, non-intrusive structural survey of the existing barn at No.10 Linleys, Gastard. The objective of this survey was to evaluate the structural integrity of the building. This report presents the survey's findings and provides recommendations for appropriate remedial measures. Additionally, it addresses the potential integration of the current architectural proposal for redevelopment within the overall repair strategy.

2.0 General

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.

This report letter is prepared for the sole use of you and your professional advisers. We accept responsibility to you alone for the stated purposes that the report will be prepared with the skill, care and diligence reasonably expected of a competent Chartered Engineer, but accept no responsibility whatsoever to any person other than you. Any other person relies on the report at his own risk.

3.0 Description

The barn at No.10 Linleys is a single-storey outbuilding comprised of stone walls supporting timber trusses, purlins, and rafters. It is situated adjacent to the B3353. On the roadside elevation, the external ground level is higher than the barn's internal floor, with the solid stone wall serving as a retaining structure. Conversely, the opposite elevation is open, with the structural trusses supported by timber posts. The floor appears to consist entirely of bare earth. The western gable is constructed from solid stone, whereas the eastern gable seems to be a later addition built using dense concrete blocks. The external surfaces surrounding the building mainly comprise loose gravel, and the topography of the area is generally flat.

Review of the British Geological Survey records indicates that the building is constructed on clay deposits overlying the Forest Marble Formation.

4.0 Observations

✓ Masonry walls:

- Large vertical crack to West gable visible internally and externally.
- Northern wall which is alongside the main road is retaining, floor level internally is lower than external ground level. It has various minor cracks and areas of loose mortar.
- Eastern wall is of modern concrete blockwork construction.

✓ Timber roof:

- There are 5 No. timber trusses, numbered 1 to 5 on the survey plan.
- Bearing of Truss 1 is damaged / cracked at northern end. It is currently propped by a single acro.
- All trusses have evidence of previous repair work.
- Northern purlin between truss 2 and truss 3 is cracked at mid span.
- The majority of timber rafters appear in reasonable condition. There are a few damaged rafters which will need replacing.
- The southern elevation consists of timber posts supporting steel channel eaves beams which support the trusses / rafters. The steel beams display signs of corrosion throughout and appear to have deflected excessively.

5.0 Discussion

Overall the barn is in poor condition. The masonry is significantly damaged in places and the roof structure has failed in certain areas, requiring temporary propping to be installed. The southern elevation is open to the elements and therefore doesn't provide any protection to the structural elements.

The west gable has a significant crack near the junction with the northern wall. This will need to be stitched up using stainless steel helical bars set in resin, and the stonework and mortar locally reinstated. More generally, the stonework will need to be cleaned up, and any areas of loose mortar / stonework will need to be repaired. An alternative to this solution would be to demolish the gable wall and keep the stones, and rebuild with a dense concrete blockwork core on a mass concrete footing.

It is proposed to cast a new ground floor slab with insulation on top. The total build up thickness will in all likelihood mean that the new formation level is below the level of the bottom of the existing foundations. We would therefore recommend that the west gable and north elevations be underpinned to a suitable depth, in sequence with each bay not exceeding 1.0m. An alternative to the underpinning would be to rebuild the gable wall as discussed above, and also rebuild the side wall, on a suitably deep mass concrete strip footing.

The timber roof structure, which consists of cut rafters and purlins supported on timber trusses, appears to be in poor condition. There is evidence of previous repair work to the trusses, there is a failed truss bearing and there is also a failed purlin. The current architectural proposals include new internal partition walls to be built in line with trusses No.2 to No.5. We would suggest making those walls structural in order to provide additional support to the trusses. Truss No.1 however will need to be repaired by bolting a new timber alongside the bottom boom to reinstate the bearing's structural integrity.

The south elevation will be closed up as part of the refurbishment work, with new external timber walls. We would recommend using the new structural walls to make the existing steel / timber structure redundant, with the timber trusses and rafters supported on the new structural wall.

The damaged timber rafters and purlins will need to be replaced or repaired by bolting new timber alongside.

6.0 Conclusion

- West gable and northern wall to be underpinned in sequence with bays not exceeding 1.0m to allow for new ground floor to be installed.
- West gable to be stitched up using stainless steel helical bars.
- Alternative to points 1 and 2 – demolish existing walls and rebuild on suitably deep mass concrete strip footings.
- New internal walls to be made structural to provide support to existing timber trusses.
- Truss No.1 to be replaced or repaired.
- New external wall to be made structural to provide support to existing roof structure.
- Damaged purlins / rafters to be replaced or repaired.

Appendix A – Photographs



Masonry crack



Failed truss bearing

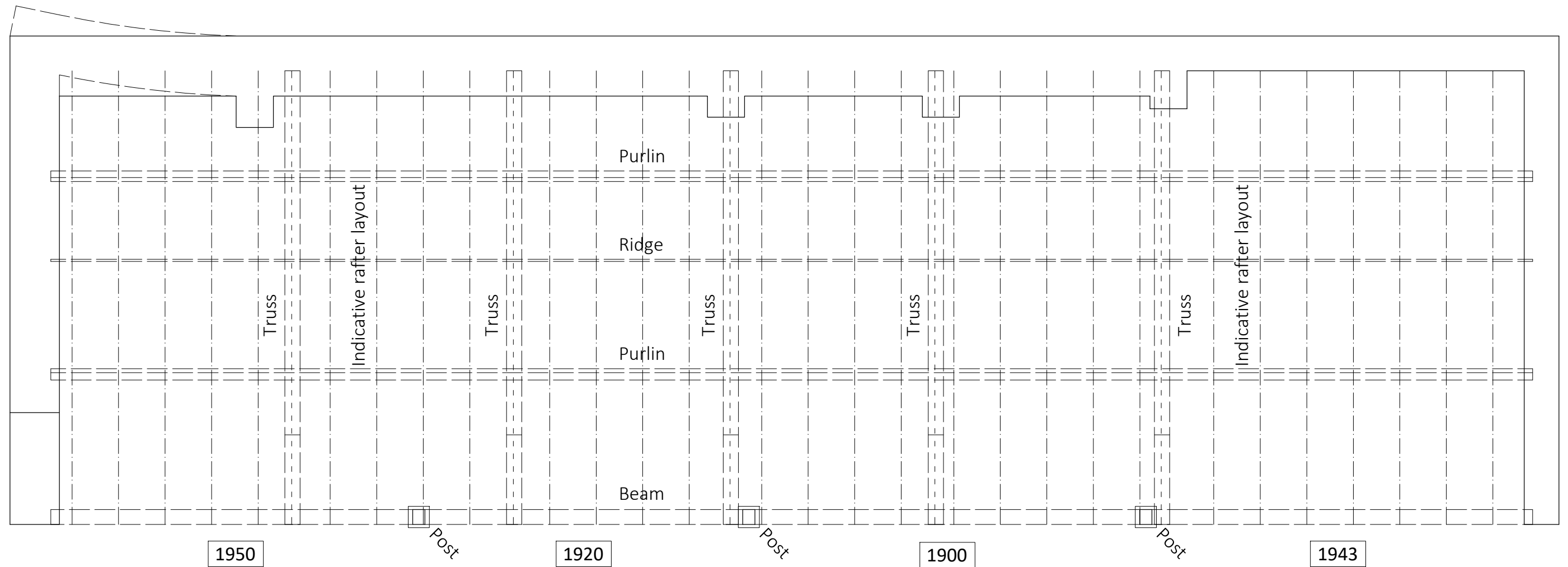


Timber / steel roof support

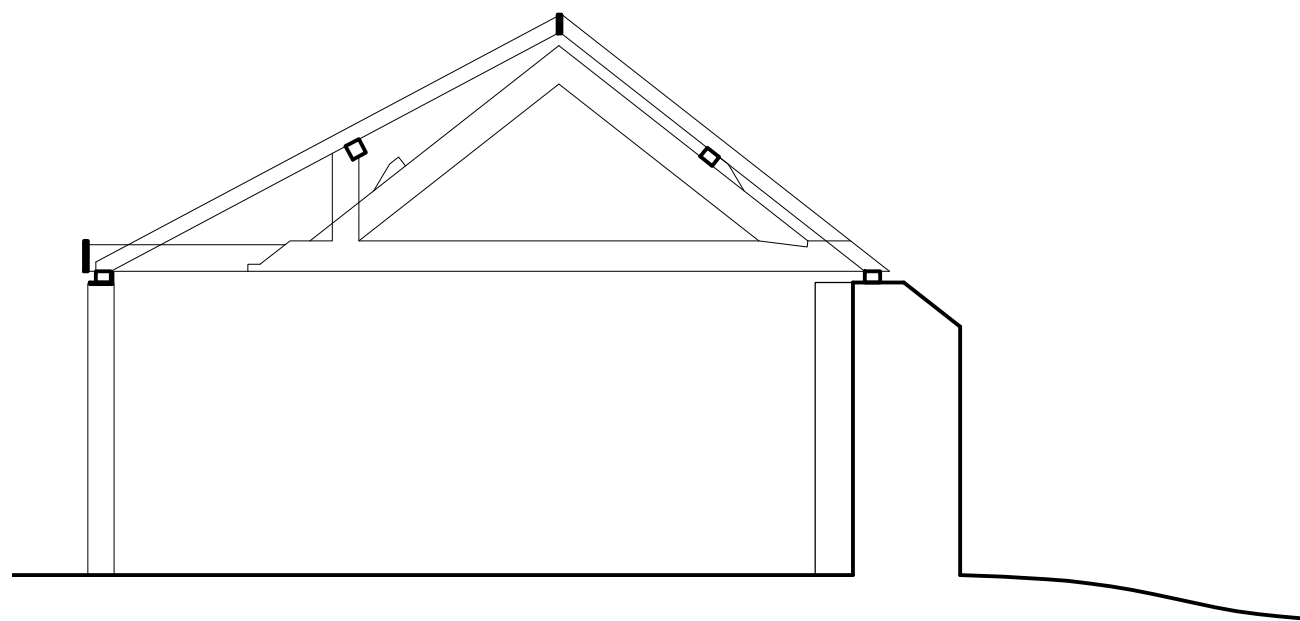


Failed purlin

Appendix B – Existing and Proposed Plans



FLOOR PLAN



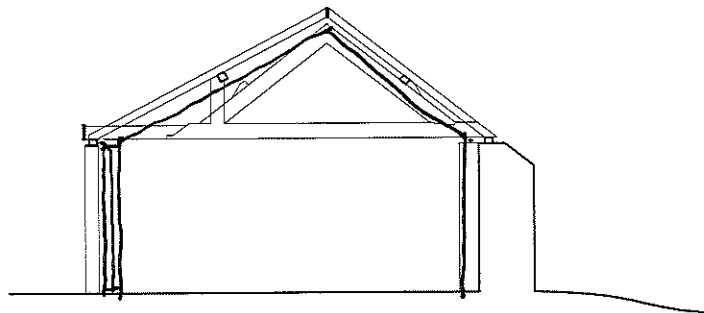
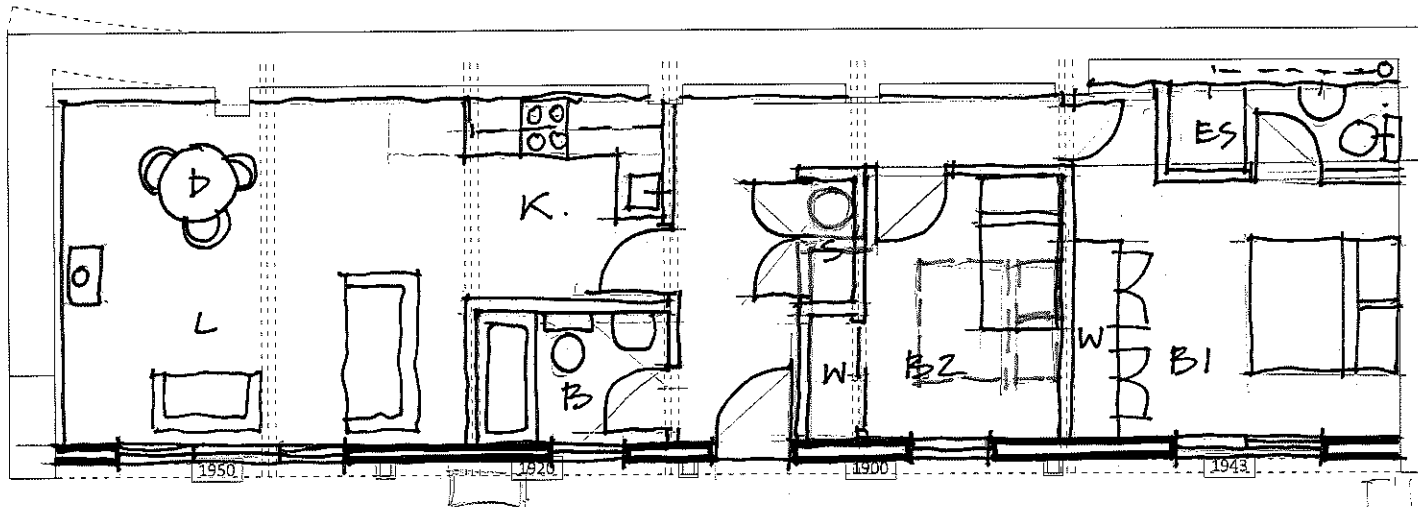
SECTION

Rev	Date	Details			
		1	2	4	6m
Project	Stage	Drawing	Rev	Status	
4180	3	100	-	PLANNING	
Scale	Size	Drawn	Check	Creation	
1:50	A3 L	JR	MB	May '25	

Project
10 The Linleys
Corsham

Detail
Survey Drawing





4180 3 100 PLANNING
 Scale: 1:50
 Date: A3 L
 Drawn: JR
 Check: MB
 Date: May '25
 Project: 10 The Linleys
 Location: Corsham
 Drawing: Survey Drawing

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Not for Construction
 This drawing is not a contract document and is not to be used for construction purposes.
 All construction work should be done in accordance with the contract documents and the
 drawings must be submitted to the architect before construction.

1:100