Sycamore Lodge - Workshops & Garage Hickling Pastures

Structural Inspection Report

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Date	Revision	Notes/Amendments/Issue Purpose
September 2023	1	For Information

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Note:

This report has been prepared for Roy and Rachael Allum and their advisors, for the purposes noted in Section 1, using the information available to us at the time. It should not be relied upon by anyone else or used for any other purpose. This report is confidential to our Client; it should only be shown to others with their permission. We retain copyright of this report which should only be reproduced with our permission.

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1 Introduction

Price & Myers visited Sycamore Lodge on behalf of Roy and Rachael Allum, on 15th September 2023. The purpose of the inspection was to advise on the condition of the outbuildings behind Sycamore Lodge annotated within red outline below. The clients stated that only the condition of the masonry and ground slab should be inspected as the roofs will be replaced.

It was possible to inspect the majority of the masonry and floor slabs and the existing foundations were exposed. The inspection was limited to what could be seen without the removal of any finishes.

2 Description of Existing Structure

Workshop 1 & 2

The existing workshops are a single storey brick structure with a corrugated cementitious roof. The walls are between 230 to 300mm thick and the bonding would suggest a brickwork cavity wall with brickwork inner skin. The floors are a concrete slab.

Garages 1 & 2

The existing garages are a more recent single storey brick structure with a slate roof. The walls of Garage 1 are approximately 215mm thick and the bonding would suggest two skins of brickwork tied together with 327mm piers to the sides of the garage doors which have flat arch brickwork lintels. The walls of Garage 2 are the same construction as Garage 1. The side wall to Garage 1 is approximately 215mm thick and the common bonding used would suggest two skins of brickwork tied together with header bricks at 6 course centres.
The floors to both are a concrete slab.

Store

The existing store is a single storey brick structure with a slate roof that abuts the rear of Garage 2. The walls of the store are approximately 215mm thick and the bonding would suggest two skins of brickwork tied together with 327mm piers to the sides of the windows which have flat arch brickwork lintels.
The floor is a more recently cast concrete slab.

Courtyard

The courtyard is an external area between the other outbuildings.
The floor is a concrete slab.

Foundations

The trial hole to the store uncovered concrete strip footings below the wall. The top of foundation is 250mm below ground level and bears on the sandy silty glacial till clay strata.
The trial holes to the workshop and the garage did not uncover the bottom of the foundations. They were also concrete strip footings and continued deeper than the 1.2m deep trial holes.

3 Observations & Discussion

Workshop 1

Workshop 1 was previously used as a pig sty; the internal brickwork has been limewashed in the past. The lintels over all the openings were precast concrete, the depths of the internal lintels to the external walls could not be measured as they were crossed by the ceiling and could not be accessed due to asbestos risk. The external lintel to the top double door could be measured at 215mm deep. The door between the workshops had a 140mm deep concrete lintel.

There was efflorescence noted in the top right corner on the inside face of the exterior wall, the extent of the efflorescence internally is hard to gauge due to the previous lime wash.

The concrete slab was 100mm thick on white polythene on 125mm crushed brick fill. The slab was in poor condition due to its previous use and there was a concrete feeding trough cast into the slab.

Externally there were no defects apparent in the brickwork that was visible.

Workshop 2

Workshop 2 still seems to be in use as a workshop, the internal brickwork has been limewashed and or painted in the past. The lintels over all the openings were precast concrete, the depths of the internal lintels to the external walls could not be measured as they were crossed by the ceiling. However, the external lintel to the door to the garage was 140mm deep.

There was efflorescence noted in the top right corner of the interior wall, the extent of the efflorescence internally is hard to gauge due to the previous lime wash, also some holes had been cut in this wall.

The concrete slab was 100mm thick on white polythene on 125mm crushed brick fill. The slab was in poor condition due to its previous use with level changes, steps and chases where it appears that brick piers have been removed in the past.

Garage 1

Garage 1 is an area formed between Workshop 2, Garage 2 and the pole barn, it has open sides to the pole barn and the door openings to the house courtyard are also open. The brickwork facing the house courtyard is 215mm thick brick with 327mm masonry piers with 327mm thick brickwork flat arches over the openings.

There is a 440mm thick brickwork pier abutting the return wall to the barn has no evident toothing. The junction at the other end of the wall where it abuts Garage 2 shows vertical cracking and signs of previous repairs.

The lintels over the garage door openings show signs of movement with vertical and diagonal cracking with previous mortar repairs. There was no evidence of lintels over these openings other than the brickwork bonding.

To the external wall of Workshop 2, that forms an internal wall to the garage, there are a couple of areas of moss-stained masonry and the is a single cracked brick to the lower corner adjacent the downpipe and gully.

The ground floor slab is 120mm thick unreinforced concrete on blue polythene on 180mm fill on clay. There is a fine crack to the full length, see above.

Garage 2

Garage 2 is formed with walls of different construction. The wall with garage doors and wall between the garages is 215mm thick brick with 327mm masonry piers and 327mm thick brickwork flat arches over the openings. The wall facing the house is 215mm thick and the common bonding header bricks at 6 course centres with light colour bricks to the interior and 215mm piers. The remaining walls are the same common bonded construction but with the same bricks as the exterior on the interior.

The walls had been poorly bonded into the store building, see below.

The ground floor slab is 120mm thick unreinforced concrete on blue polythene on 180mm fill on clay. There is a covered garage pit in the floor and a fine crack from the rear corner to between the garage doors, see below.

Courtyard

The courtyard external concrete slab is 100mm thick unreinforced concrete on 100mm fill, much of the slab is not visible as it is covered with moss, but it is in poor condition and cracked, with plants growing through the cracks.

4 Conclusions and Recommendations

The masonry walls to the outbuildings surveyed were generally plumb and in good condition and suitable for reuse to support new roofs.

The efflorescence within the workshops may have been caused by repeated washing of the pigsty floor to Workshop 1 and by leaking external gutters or previous leaking internal sinks to Workshop 2. Once the new external skin of the wall is installed this can be cleaned off the walls with a wire brush and ensure DPM to ground slab wraps up the side adjacent the wall.

It is unclear whether the walls to the store that show no sign of a brick bond have brick ties installed. Brick ties would be consistent with the age of the building; however, the contractor is to investigate and if the walls are not tied then this should be remedied. Potential remedial works could include installing a brick bond or use of a post installed brick tie either resin or mechanically fixed through both leaves of the wall.

The mossy staining to the wall in Garage 1 has been caused by the roof leaking down the wall, this can be cleaned off. It does not appear that the leak has caused any further damage to the brickwork.

The cracked and crumbling brick to Garage 1 adjacent to the gully to be replaced.

The cracking to the flat arch lintels over the garage doors may have been caused by insufficient bearing of the arch masonry on the piers to the supports and the geometry of the flat arch. However, if there is a hidden steelwork lintel then there may be insufficient bearing for this or it has been incorrectly installed. Therefore, if the openings are to remain and use the same geometry a new steelwork lintel should be installed fully to manufacturers' guidelines.

None of the ground slabs have any reinforcement or insulation. The slabs to the courtyard and workshops are not suitable for reuse due to the cracking and haphazard steps in Workshop 2. The ground slabs to the store and garage are more suited for reuse subject to architect's specification for insulation and levels. The hairline cracking of the garage slabs has occurred at expected locations due to drying shrinkage of the concrete after construction and no reinforcement to control the cracking.

The lack of reinforcement to the slabs could allow future cracking. If brittle finishes are to be used, it is recommended to replace the slabs with a reinforced concrete slab. If non-brittle finishes are to be used, the slabs could be considered acceptable however replacement would still be recommended.

Appendix A
Drawing

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Job No.	30123	Page	SK 010	Rev	1
Date	14/09/23	Eng	ah	Chd	br
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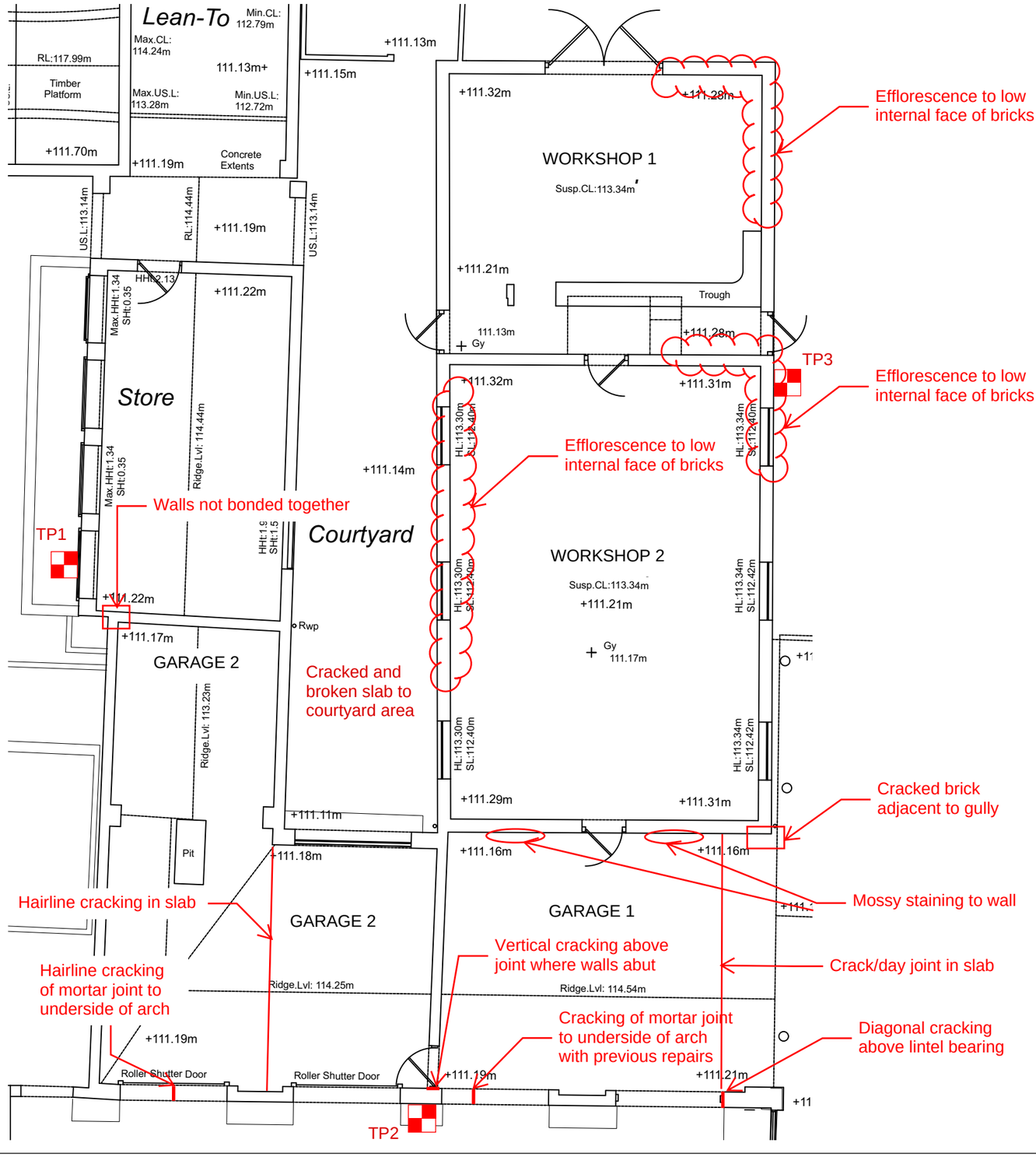
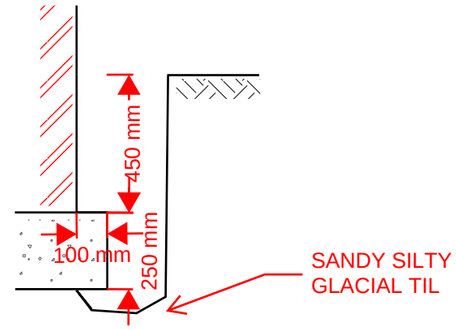


TRIAL PIT TP1



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