STRUCTURAL BUILDING REPORT

PROJECT LOCATION
310 Pine Brush Road Glen Martin

CLIENT NAME
Danny Woodland
C/o Perception Planning

DRB PROJECT NUMBER
211334

DISCLAIMER

Project Number: 211334

Client: Danny Woodland

This Report has been prepared on behalf of the Client noted above and in accordance with the agreement between DRB Consulting Engineers and the Client. It is intended solely for the use of the Client and shall not be relied upon by any third party without the written consent of the Client and DRB Consulting Engineers. No liability is accepted for unapproved use of or reliance on the contents of this report without prior written consent. DRB Consulting Engineers reserves the right to alter this report at any time without notification and reliance on information contained within.

Report Issues

Revision	Date	Description	Author
A	22/11/2021	FINAL ISSUE	CB

CONTENTS

1 INTRODUCTION

DRB Consulting Engineers (DRB) were engaged by Danny Woodland c/o Perception Planning to undertake a visual structural inspection of the existing converted shed structure and single storey dwelling located at 310 Pine Brush Road Glen Martin. The property is located in a rural area and is accessed via a gravel driveway Pine Brush Road.

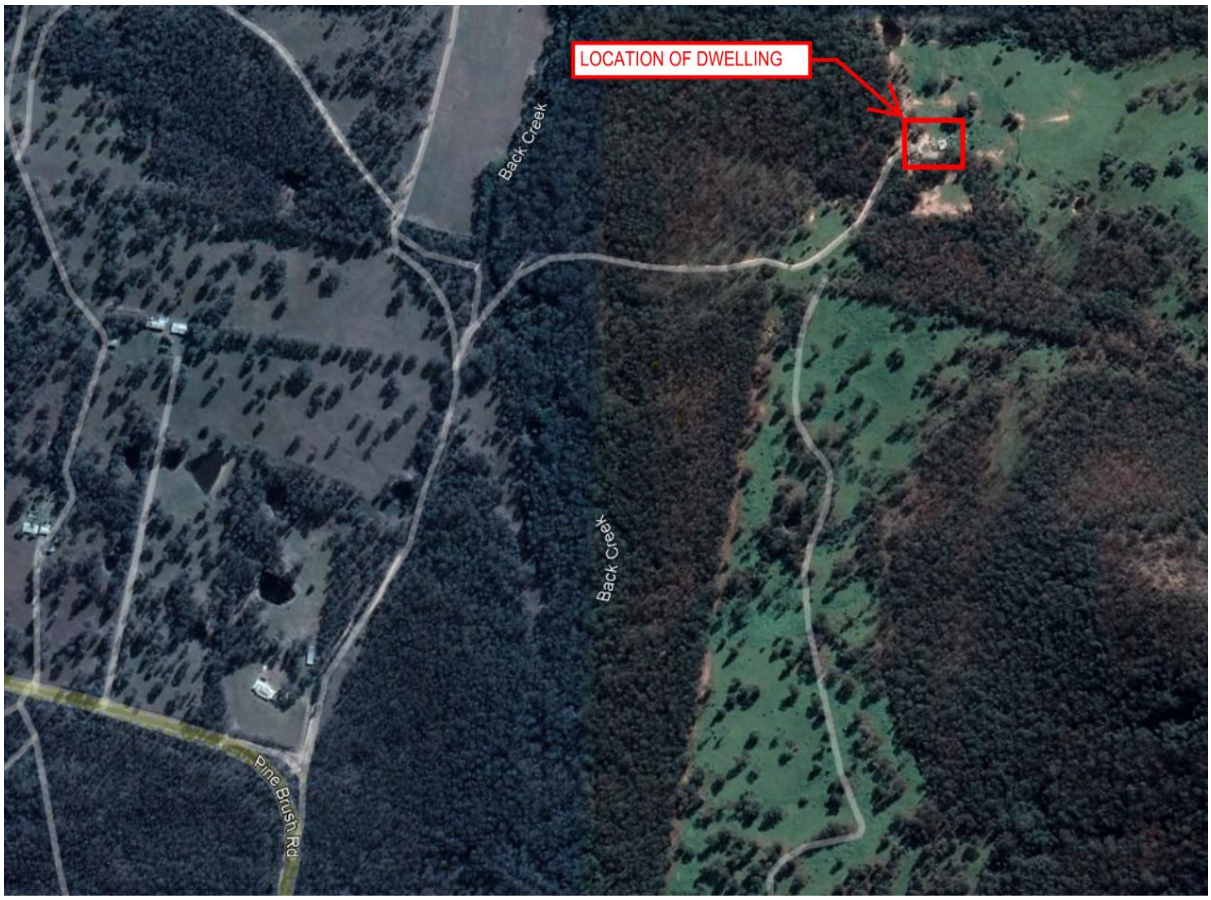


Figure 1 - Location Plan

2 SITE INVESTIGATION

The site is located in a rural area and is surrounded by mature trees. Site wind classification is N2 in accordance with AS4055 Wind loads for housing. The building structures are located on a relatively flat area and consist of a single storey clad frame dwelling currently used for storage and a separate shed structure of which a portion has been converted into a habitable space.

The single storey dwelling consists of slab on ground foundations with combination of masonry veneer and clad frame construction and sheet metal clad roof.

The western end of the shed structure has been converted into a habitable space with concrete floors. The walls and ceilings have been lined with plasterboard. A timber framed loft area is located at the far western end of the building.

The eastern end of the shed structure is currently used for storage and consists of lightweight steel and timber framing supported on isolated pad footings with earthen floor.

3 CONCLUSION

We, DRB Consulting Engineers Pty Ltd, being practising Structural Engineers as specified within the meaning of the National Construction Code of Australia, hereby certify that we have undertaken the structural engineering design review of the abovementioned structures in accordance with sound engineering practices and confirm that they are generally in accordance with the relevant Australian Standards including:

AS1170 – Structural design actions
AS2870 – Residential slabs and footings
AS1684 – Residential timber-framed construction
AS3600 – Concrete structures
AS3700 – Masonry structures

We note that several building elements require rectification works to achieve structural adequacy and compliance with Australian standards. These elements are identified in Section 4, below.

4 RECOMMENDATIONS

The visible elements of the existing dwelling are generally structurally adequate; however, the following areas were identified as requiring rectification to achieve compliance:

Single storey dwelling

- Subfloor masonry on northern elevation
    - The bricks in the subfloor masonry on the northern elevation have deteriorated and eroded. The affected bricks should be removed and replaced and the brickwork repointed as required.
    - Damage to claddings has exposed timber framing to weather. Rectify cladding to restore weather protection to framing.

Shed structure

- Framing
    - The existing roof framing consists of hardwood rafters and battens supported on walls or hardwood/steel purlin beams.
        - Spacing between the existing hardwood rafters needs to be reduced to max 1200 centres. Add new 90x70 F27 KDHWD rafters to reduce spacing as required.
        - C200 purlin section roof beam spanning 8.8m requires two additional evenly spaced support posts to reduce span. Posts can be minimum 90x90 MGP10 with proprietary galvanised saddle bracket supported on pad footings to AS2870.
        - Steel tophat wall batten spacing is too large for span between columns in eastern end of shed. Provide additional tophats in accordance with manufacturers specifications to achieve maximum spacing of 700mm.
        - Fixings between tophats and sheeting missing. Install fixings in accordance with custom orb sheeting manufacturer specifications.
        - Wall and roof bracing missing. Provide steel strap bracing to AS1684 requirements.
        - Tie-down connections missing throughout structure from rafters to beams, beams to posts, posts to footings. Provide tie down connections in accordance with AS1684.

- Pad footings – Eastern end
    - The pad footing at the north-eastern corner of the building has been undermined and is undersized. Add to existing footing or provide new footing to achieve minimum 500mm embedment into firm natural soil and minimum diameter of 400mm. Confirm size of other pad footings at eastern end of shed and upgrade as noted above if required.

This structural design statement does not cover design of the following elements: -

- Structures other than the single dwelling and adjacent shed structure,
- Non-structural elements,
- Observations within this report relate to the dwelling structure and shed structure observed through visual inspection only. The condition of concealed areas such as roof spaces, structures concealed by claddings, subfloor areas and buried elements was not observed.
- Bushfire ratings, termite protection, waterproofing, roof drainage, claddings, etc. are outside of our area of expertise and are assumed to be covered by a BCA consultant.

Should you require any further advice or clarification of any of the above, please do not hesitate to contact us.

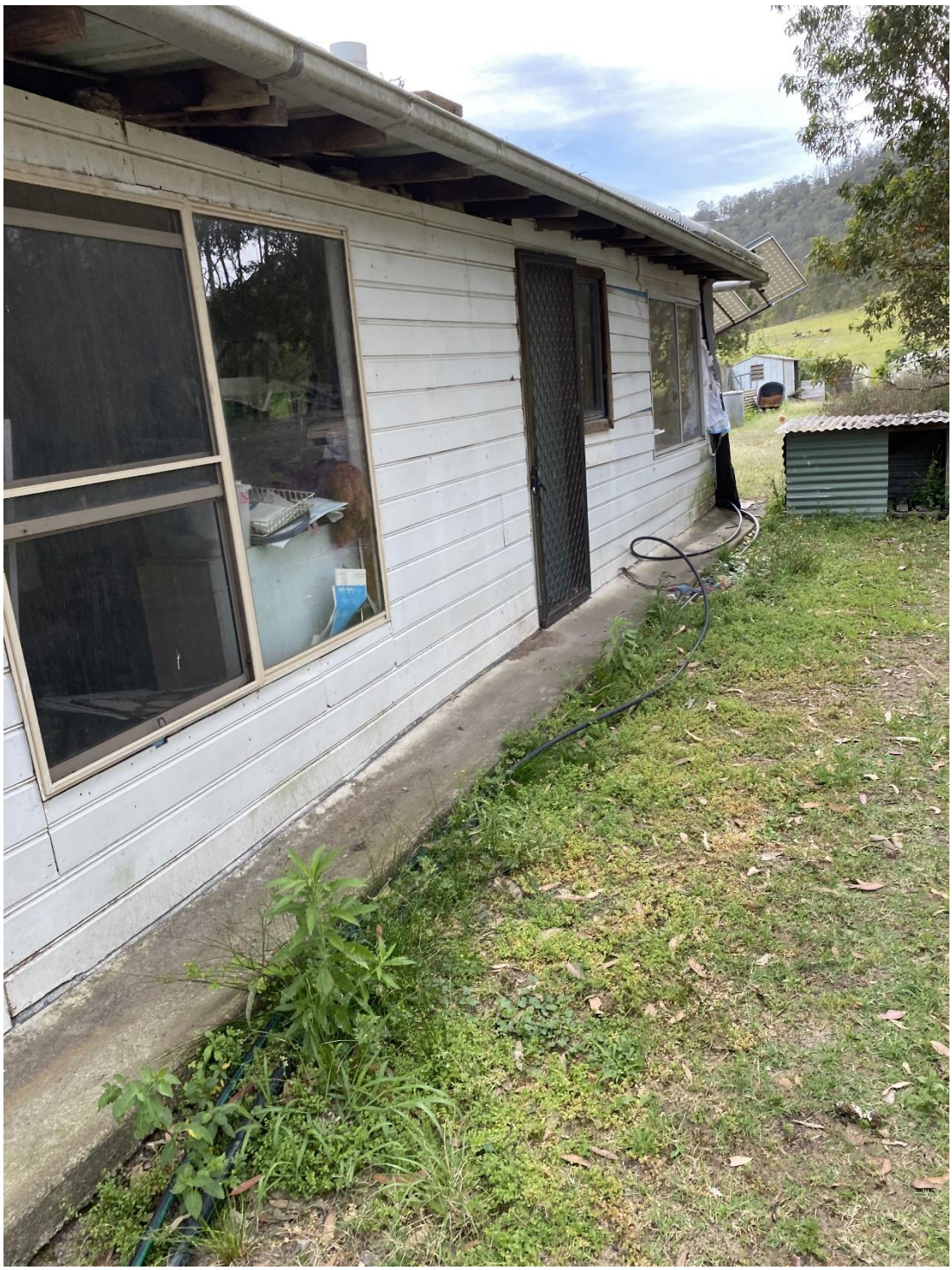
Yours faithfully

DRB CONSULTING ENGINEERS PTY LIMITED

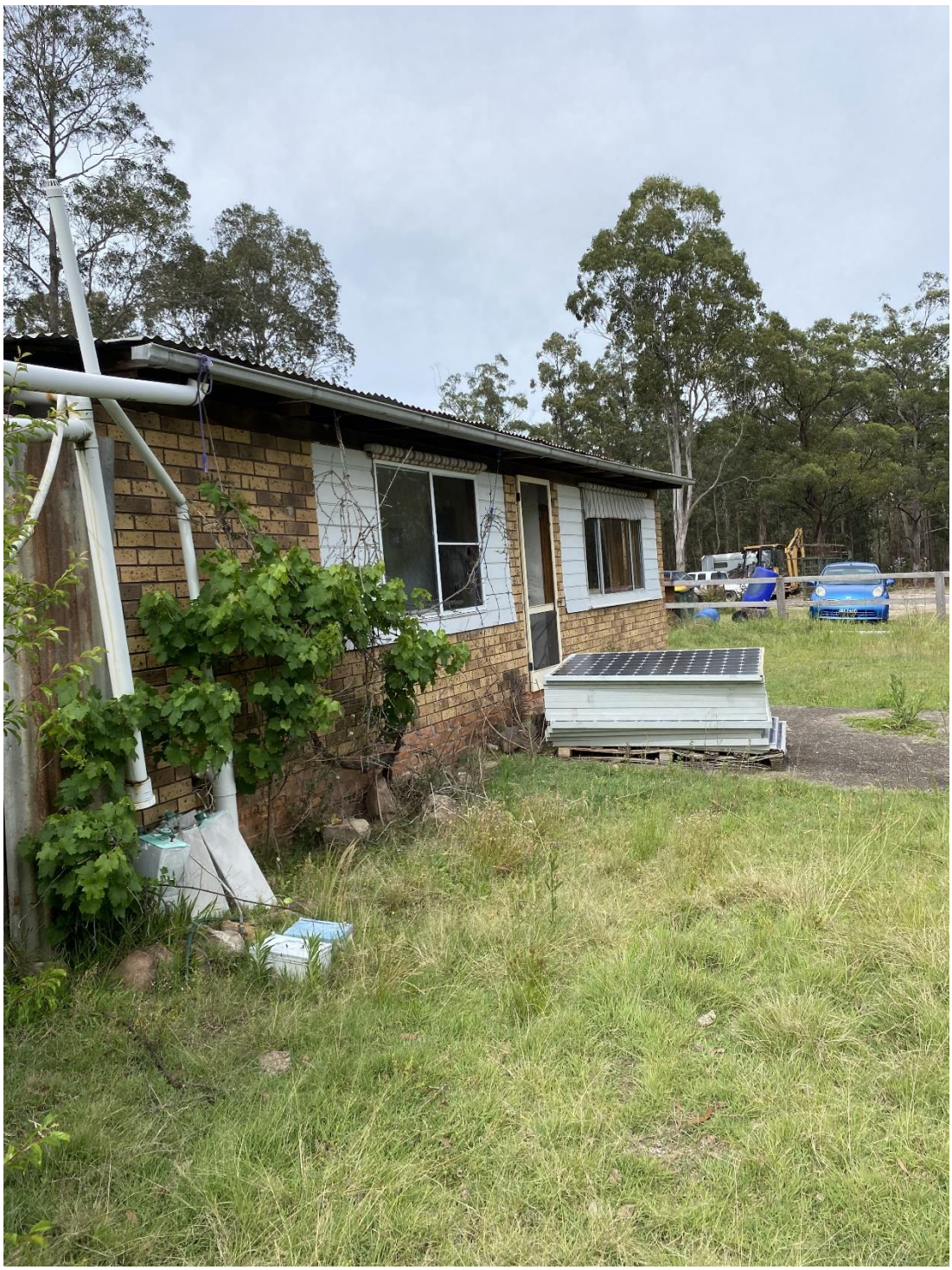
Chris Bear
Senior Engineer
BEng (Civil) Hons MIE Aust

5 APPENDICES

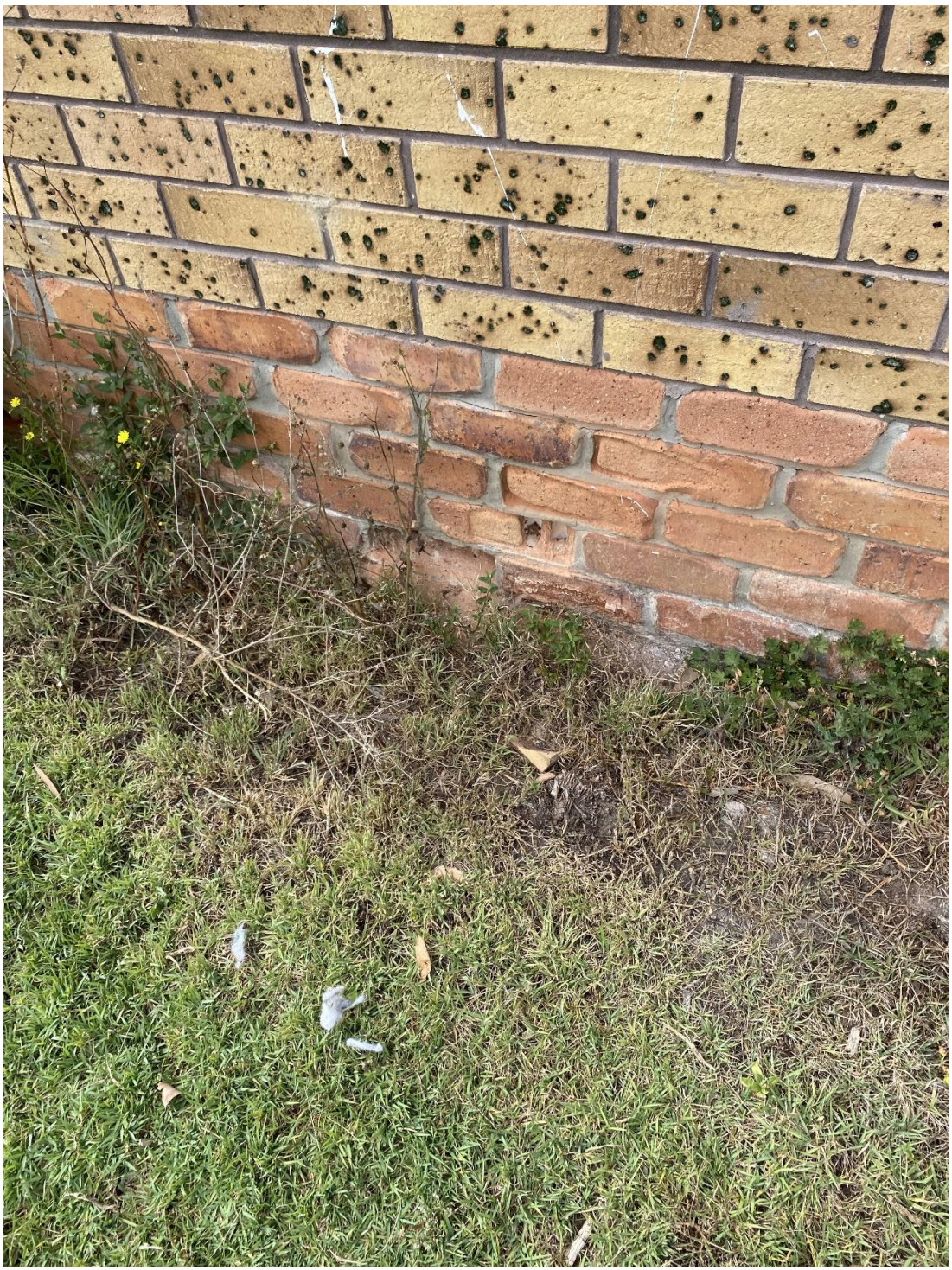
A APPENDIX A – PHOTOGRAPHS



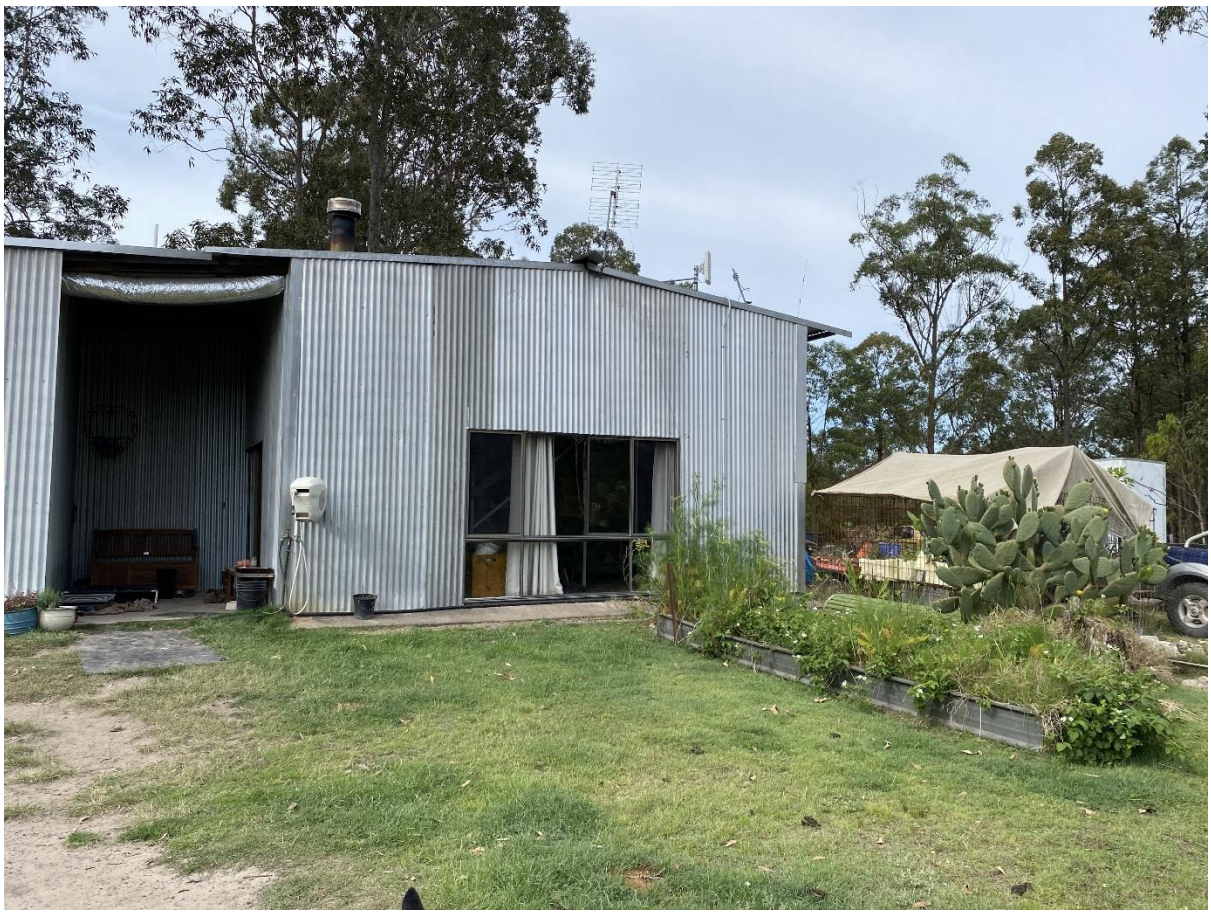
Photograph 1 – South elevation of single storey dwelling.



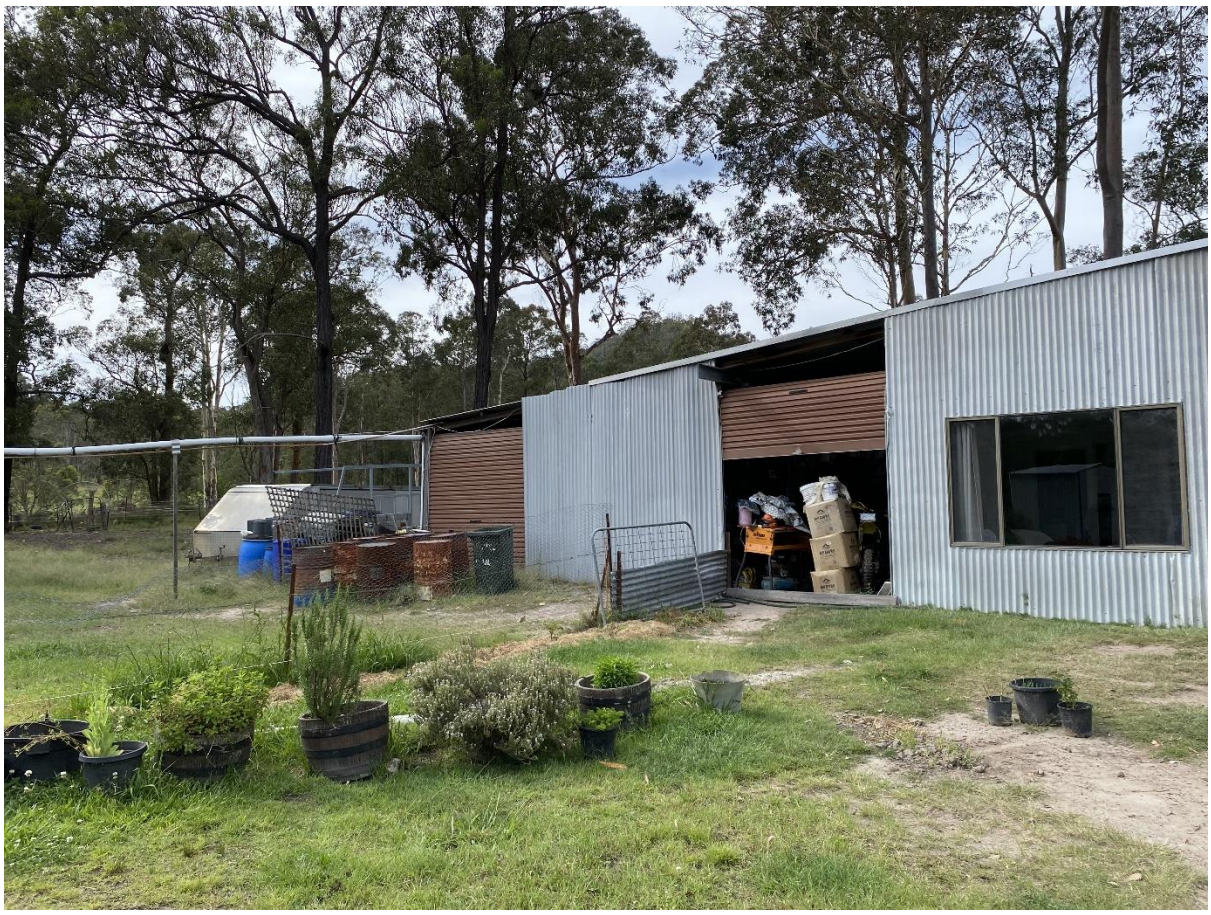
Photograph 2 – North elevation of single storey dwelling.



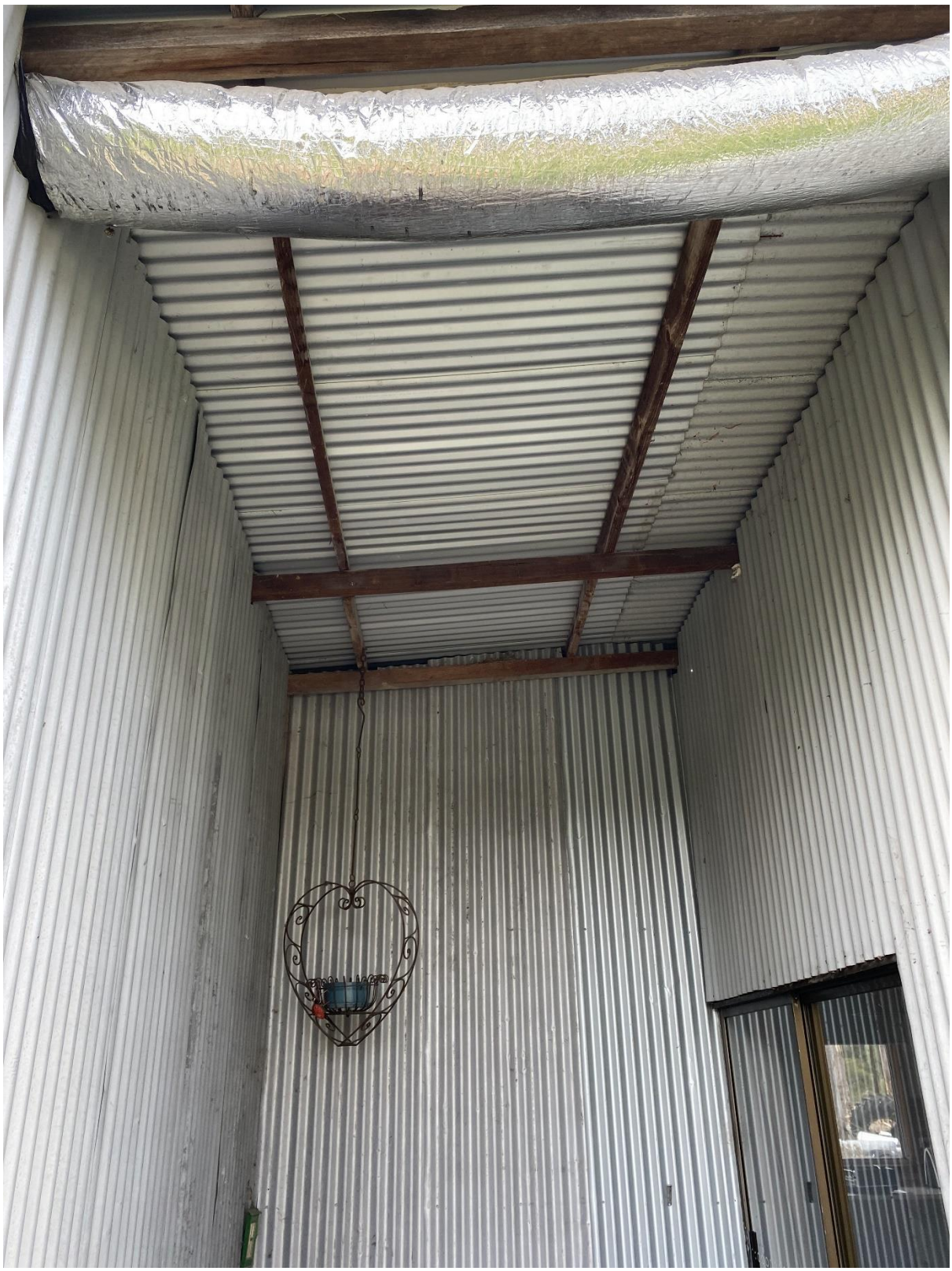
Photograph 3 – Deterioration of subfloor masonry on single storey dwelling.



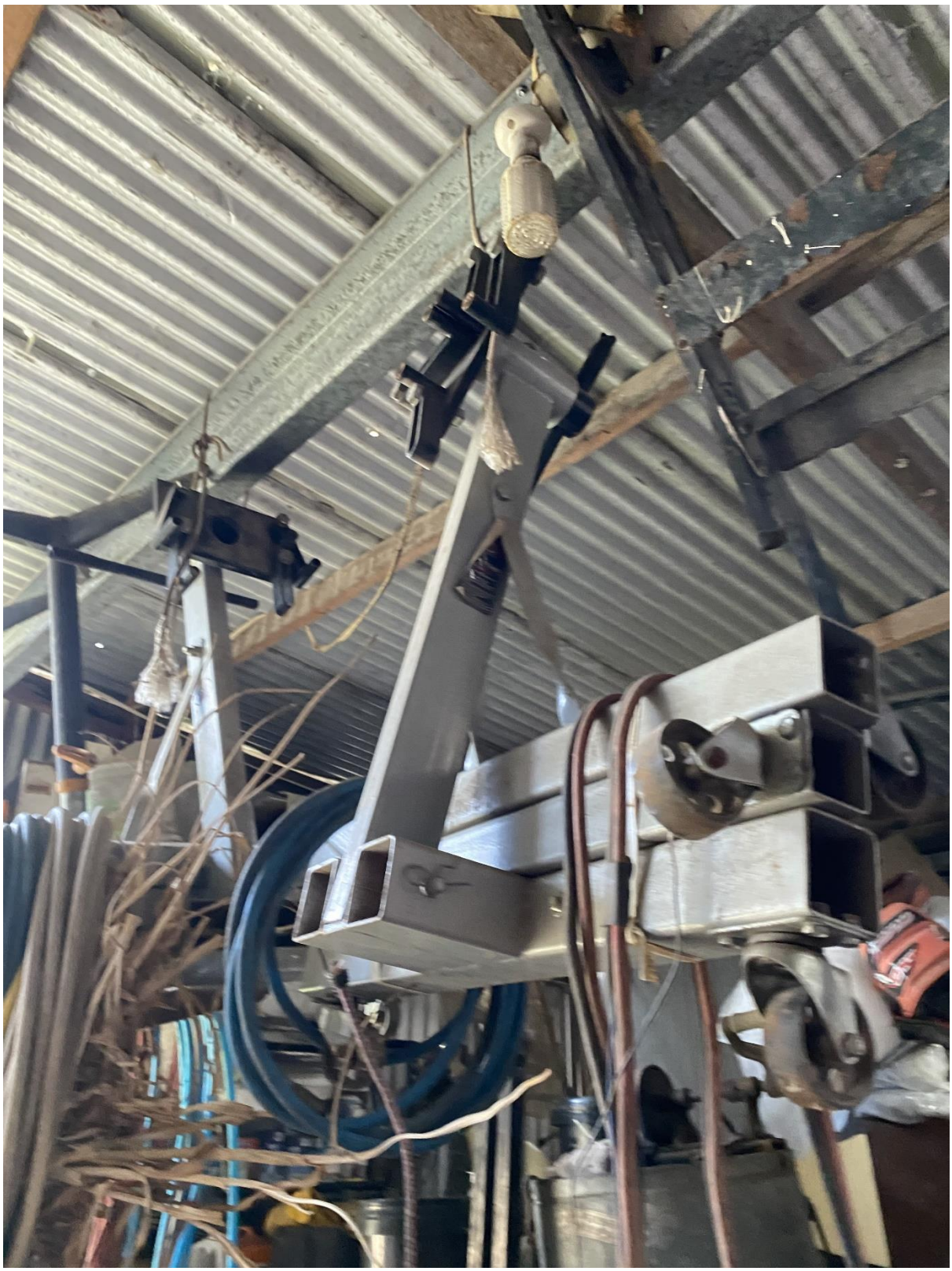
Photograph 4 – North elevation west end of shed structure which is converted to habitable living space.



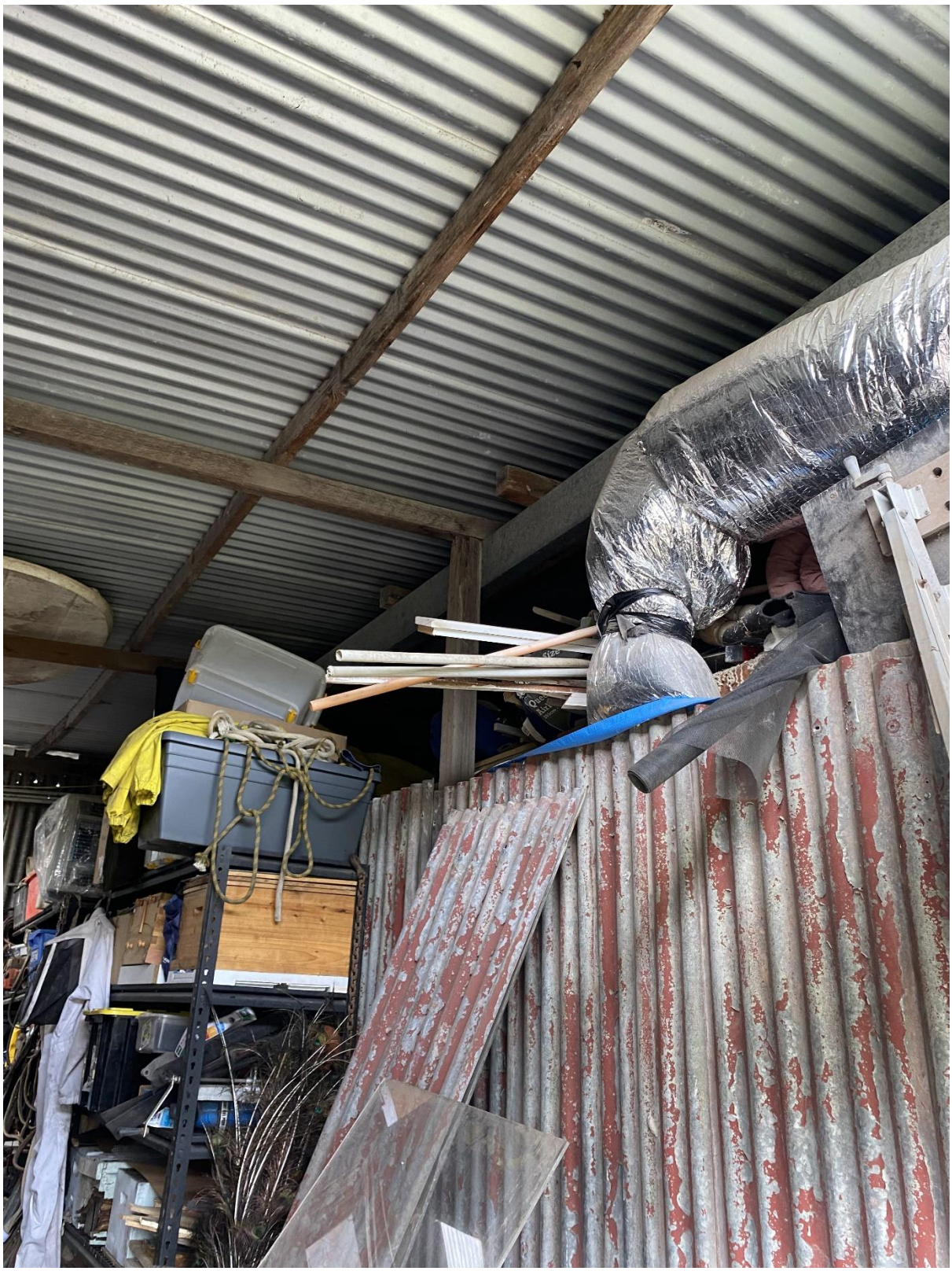
Photograph 5 – North elevation, east end of shed structure used for storage.



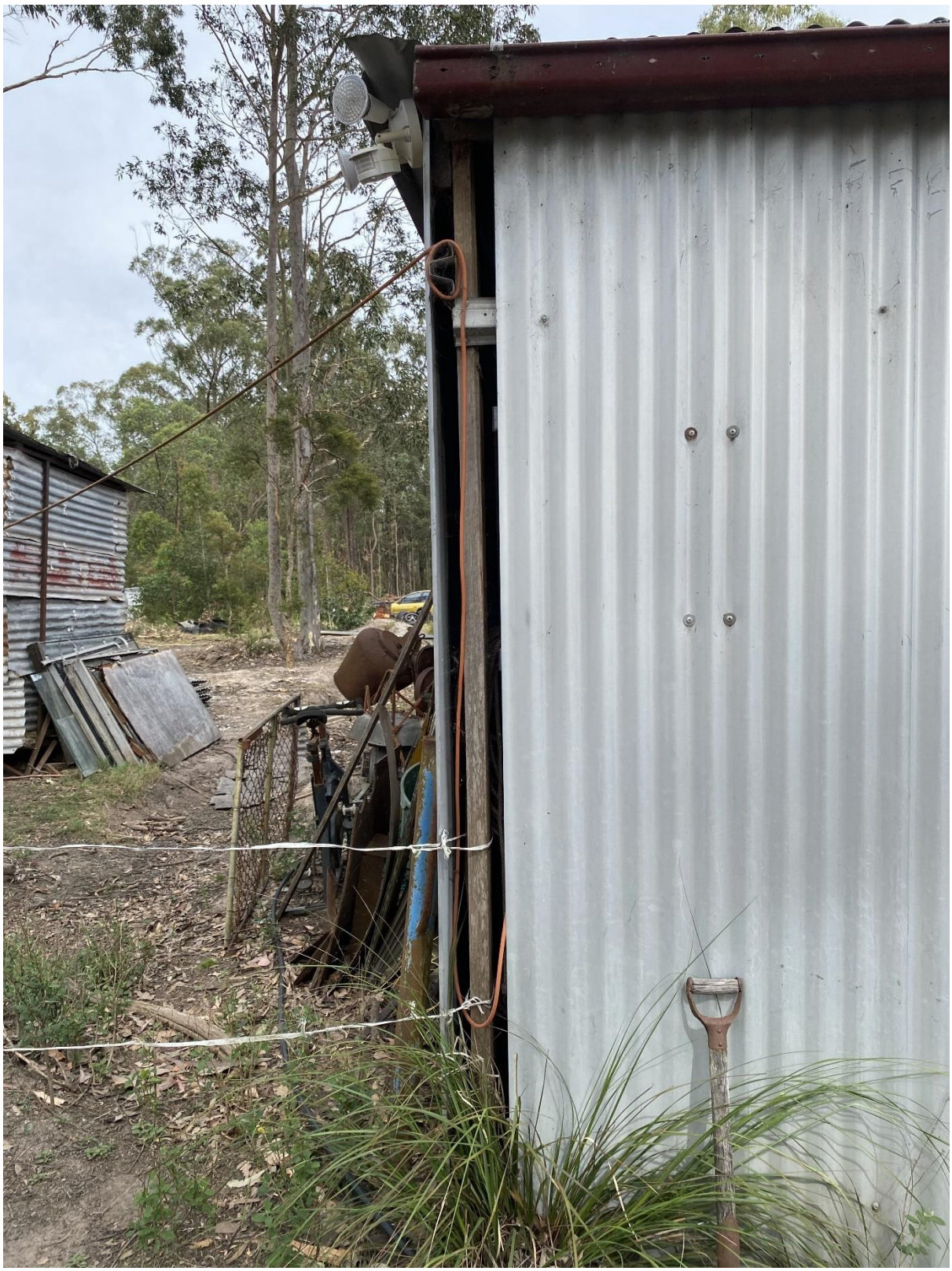
Photograph 6 – Shed structure entry roof. Rafters spacing too large.



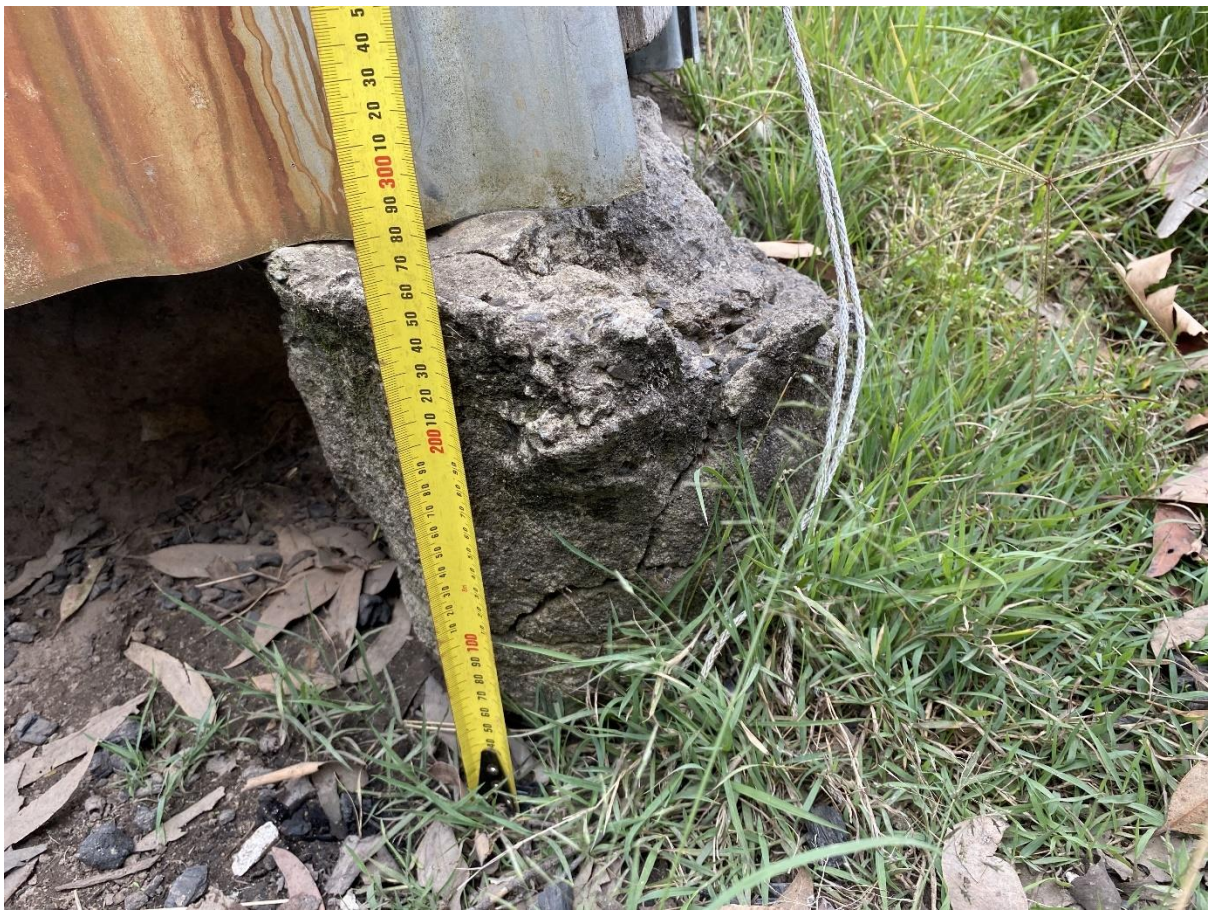
Photograph 7 – C200 purlin beam requires two additional post supports to reduce span.



Photograph 8 –Shed rafter spacing too large. Add rafters to reduce spacing.



Photograph 9 –Shed structure wall batten spacing too large and fixings missing.



Photograph 10 – Shed structure pad footing undermined and undersized.