STATS Australia
Specialist Testing and Technical Services

RELOCATION OF TIMBER STRUCTURE, SHEPPERTON ROAD AND RUSTHON STREET

Visual Inspection and Feasibility Study

Prepared for

Town of Victoria Park

Perth Add
Unit 1/16 Production Road, Canning Vale, WA 6155
T: 08 9455 3654
F: 08 9455 3709

Karratha Add
1938 Pyramid Rd Karratha, WA 6714
T: 08 9144 4637
F: 08 9144 2665

www.statsaustralia.com.au

STATS Australia

Perth
Unit 1/16 Production Road, Canning Vale, WA 6155
Karratha
1938 Pyramid Road, Karratha, WA 6714
Singapore
71 Toh Guan Rd East, #02-01/02/06 Techcentre, SG 602598
www.statsaustralia.com.au ABN 43 155 668 269

Document History and Status

Title:	Relocation of Timber Structure, Shepperton Road and Rusthon Street
Job Number:	102562
Issue Date:	19 September 2022
Internal File ID:	Stats WA\Company - Documents\1. Clients - Projects\Town of Victoria Park\102562 (Quo5962)_FS@Relocate Timber Structure, Shepperton Rd and Rusthon St\3.Report
Revision:	0
Status:	Final
Issued to:	Town of Victoria Park
Authors:	Kevin Loh
Reviewer:	Aidan Seck
Approval:	Aidan Seck

Distribution List for this Report	Hard Copy	Soft Copy
Town of Victoria Park	Nil	1 pdf, Email
STATS Australia	Nil	1 pdf, Server

IMPORTANT NOTE

Please refer to STATS "Notes about Your Report"

STATS Australia

Perth
Unit 1/16 Production Road, Canning Vale, WA 6155
Karratha
1938 Pyramid Road, Karratha, WA 6714
Singapore
71 Toh Guan Rd East, #02-01/02/06 Techcentre, SG 602598
www.statsaustralia.com.au ABN 43 155 668 269

Table of Contents

EXECUTIVE SUMMARY **1**
Findings **1**

Figures

Figure 1: Overall view of proposed investigation structures.
Figure 2: Numbering and Orientation of Photographs

Appendices

Appendix 1: Notes Relating to this Report.
Appendix 2: Visual Inspection and Photographic Survey at Croquet Clubhouse and Cottage.

EXECUTIVE SUMMARY

Specialist Testing and Technical Services (STATS) was engaged by Mr. John Wong on behalf of Town of Victoria Park (the Client), to conduct a feasibility study of removing and relocating two (x2) existing building timber structures located at the corner of Shepperton Road and Rushton Street. The visual inspection work was conducted on 31 August 2022 and 7 September 2022.

The proposed two (x2) existing timber structures are:

- Croquet Clubhouse
- Cottage

An overall building layout of proposed investigation structures is presented in Figure 1.

The scope of work comprised of the following:

- Administration, organise Dial Before U Dig information, review provided building drawings (if any) and any underground service drawings.
- Mobilised and demobilised STATS Crew and Equipment to Town of Victoria Park.
- Carry out a Structural Inspection of the existing buildings that are visible and above ground - columns, footings (if available), roof system, beams, slabs.
- Identify areas of weakness and requirements for additional follow up testing or sampling program (if required).
- Provide a Report on findings, advice on feasibility of removal based on visual inspection records.

Findings

A visual inspection and photographic survey were conducted by STATS Australia to determine the existing timber structural conditions. In general, the roof timber and roofing system present a **Moderate condition** based on the following observations:

- No presence of visible termite activities at the time of inspection.
- Localised timber splits/cracks especially at the connection details that require replacement.
- Some timber rafters are showing signs of permanent sag and require replacement.
- Localised areas of roofing sheet are showing signs of sag, corrosion and rust.
- Internal ceiling panels and vents are possible asbestos-containing materials.
- Jointing and connections require further detailed assessment and inspection, considering the age of the building. Any lifting operations may result in sudden failure due to joints/nails/bolts rust and lack of bond.

For the wall system, a **Moderate condition** is assigned based on the following observations:

- Presence of rust stains and corrosion on the external cladding face.
- Internal walls are asbestos containing materials.
- Inspection could not be carried out for the steel frame and external cladding panels.
- Walls are showing signs of bending outwards.

For the footing system, a **Good to Moderate condition** is assigned with only localised pads presenting minor cracking.

All the documented defects were further assigned a Condition Rating 1 to 4, alongside with various defects and further action.

Table 1: Condition Rating

Condition Rating	Condition Description	Action Required
4	Significant	Requires significant to major repair or replacement, like for like.
3	Observable (Defects, Cracks or Loose Connections)	Requires minor to moderate repair work to elements.
2	Noticeable	Requires observation and monitoring only.
1	Good Condition	No Action required.

Structure 1: Croquet Clubhouse

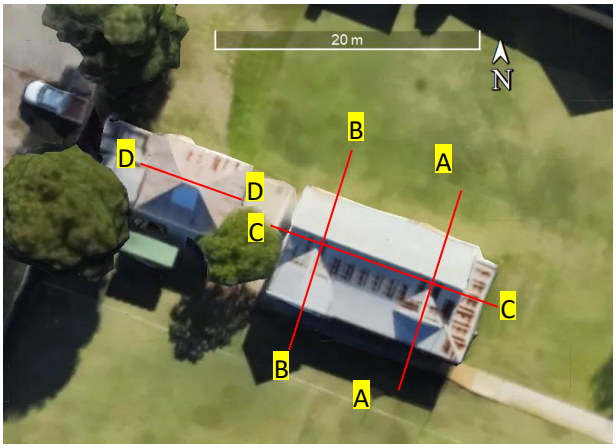
The croquet clubhouse is located to the centre of the lot, with two full manicured croquet courts to the north and south. The structure constructed of timber rafters framing with a corrugated steel roof. A veranda and foundation extension work had been carried out at the southern face of the clubhouse in 2020. A gable projects out on the west side of the building.

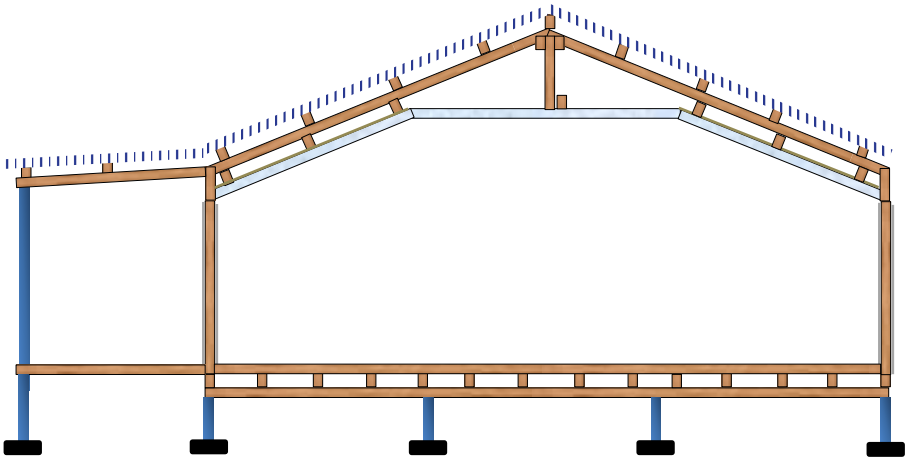
Detailed locations of defects and the orientation of photographs taken are presented in Figure 2, Photo 1 to Photo 38. Visual inspection findings and photographic surveys are presented in Appendix 2. A summary table for this structure is shown below:

Table 2: Summary of defects at Clubhouse

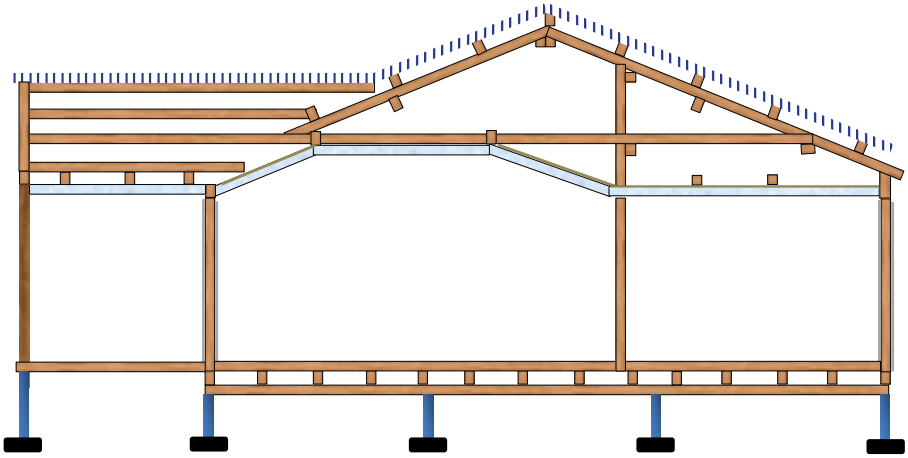
Location	Element	Condition Rating	Defects Description	Photos
Overall	Ridge Beam and common rafter	3	Bending and slightly deformation	Photo 1,2
West	Barge rafter, king post and studs,	3	Observed gaps	Photo 5
West	Rafter	3	Observed cracks	Photo 7
North	Cables	1	Cables and services shall be removed	Photo 15
South	Cladding and exterior decoration	3	Observed delamination and rust progressive condition	Photo 23, 28
South	Rough sill	3	Observed transverse cracks	Photo 24
South	Rafters and purlins	4	Observed disconnection and bending	Photo 25, 27
South	Top plate	4	Observed cracks	Photo 26
Interior	Walls throughout	2	Asbestos fibre cement product	Photo 29, 30, 31, 35
South	Rafters	3	Observed cracks and loosen	Photo 32, 33
Interior	Ceiling	3	Observed cracks	Photo 37

A sketch of the timber roof system and section inspected are presented below:

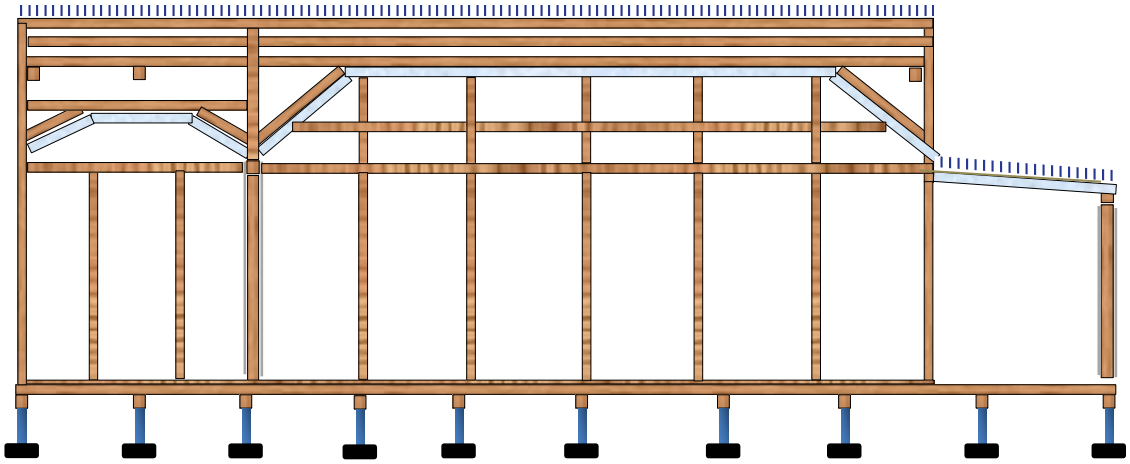




Section A-A of Croquet Clubhouse



Section B-B of Croquet Clubhouse

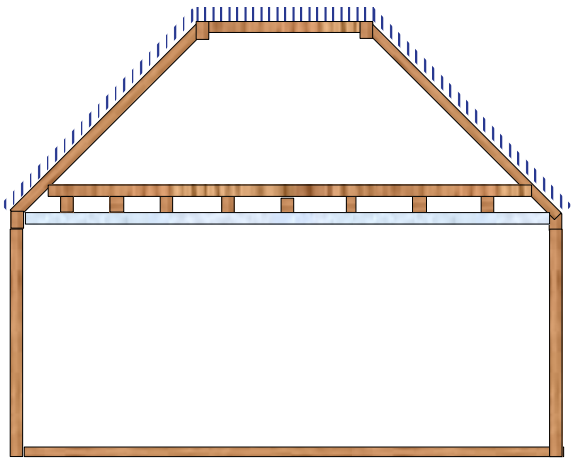


Section C-C of Croquet Clubhouse

Structure 2: Cottage

There is a small cottage located on the West side of the main croquet clubhouse. The construction system is similar to the clubhouse, comprising of timber rafters framing and corrugated cladding. All structural elements are present in **good** condition at the time of the visit.

Detailed locations of defects and the orientation of photographs taken are presented in Figure 2, Photo 39 to Photo 44. Visual inspection findings and photographic surveys are presented in Appendix 2.



Section D-D of Cottage

Conclusions and Recommendations

Based on the above findings, our recommendation for the relocation work for both buildings is considered **Feasible** but **with a condition Rating of 3 to 4.** The removal and relocation will require further the following processes and recommendations:

- All roofing sheets presenting signs of corrosion or rust on the internal and external faces or signs of visible sag shall be replaced with new sheets. For panels that can be salvaged or repaired, these panels will require further treatment and new coating protection to be carried out at a cleaning factory.
- All timber elements showing splits or cracks with rusty connections or sag or with signs of timber infestation are to be replaced.
- Cladding panels are presenting signs of rust on the external face and requires stains removal and or replacement. For panels that can be salvaged or repaired, these panels will require further treatment and new coating protection to be carried out at a cleaning factory.
- The lack of a rigid wall system, capping roof perimeter and internal beams will infer the building has no internal braces or ties to rigidly tie in the elements during the shifting processes. This shall require the incorporation of new temporary tie rods, vertical posts, temporary internal bracing and beams to secure the building before any shifting process.
- Feasibility of relocation of the timber structures shall also take other potential costs/steps into account, these including:
    - Asbestos management to mitigate potential asbestos dust release into the neighbourhood during the moving process (highly recommended).
    - Repair and replacement of deteriorated elements – roofing sheets, timber rafters, rusting and splits at connections/joints, external cladding sheets.

STATS AUSTRALIA

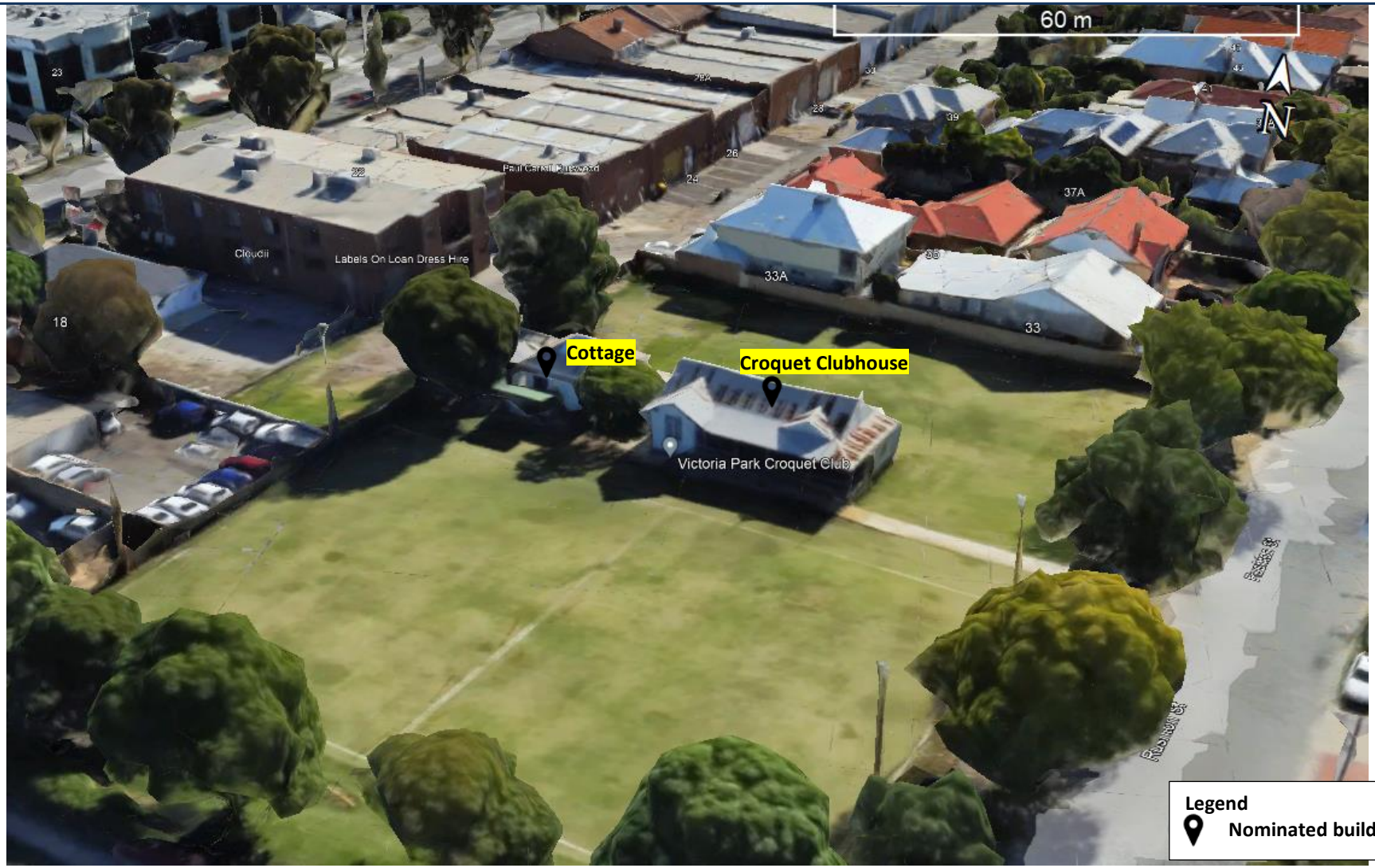
Kevin Loh
MEng(Civil), BSc(Eng), MIE(Aust)
Civil Engineer

Aidan Seck
BEng (Civil), MIE(Aust), CPeng, NPER
Principal Engineer/Manager

Figures

Figure 1: Overall view of proposed investigation structures
Figure 2: Numbering and Orientation of Photographs

(No of pages including this page: 03)



Project Title: **RELOCATION OF TIMBER STRUCTURE, SHEPPERTON ROAD AND RUSTHON STREET** - **Feasibility Study**	**Title: Site layout of the timber buildings**		**STATS AUSTRALIA** **Unit 1/16 Production Road, CANNING VALE WA 6155** **Tel: 08 9455 3654** **Fax: 08 9455 3709** **www.statsaustralia.com.au**
	Figure: 1	**Scale: NTS**	
	Date: 12 Sep 2022	**Drawn: KL**	
	Checked: AS	**Approved: AS**	
	Project No: 102562	**Rev: 0**	

Condition Rating	Defects Description
4	Significant Defects
3	Moderate condition (Defects, Cracks or Loosen Element)
2	Asbestos Product
1	Good Condition

NORTH

Legend:

Photo IDs and orientations.

***Remarks:**

The number indicates the Photo ID in Appendix 2; the colour of the number indicates the Condition Rating. E.g., '25' represents a Significant Defects of Photo 25.

Project Title:

RELOCATION OF TIMBER STRUCTURE, SHEPPERTON ROAD AND RUSTHON STREET

- **Feasibility Study**

Title: Site layout and proposed areas of investigation work

Figure: 1	**Scale: NTS**
Date: 12 Sep 2022	**Drawn: KL**
Checked: AS	**Approved: AS**
Project No: 102562	**Rev: 0**

STATS AUSTRALIA

Unit 1/16 Production Road,
CANNING VALE WA 6155

Tel: 08 9455 3654
Fax: 08 9455 3709
www.statsaustralia.com.au

Appendices

Appendix 1: Notes relating to this report

(No of pages including this page: 02)

STATS Australia
Specialist Testing And Technical Services

Perth Add:
Unit 1/16 Production Road, Canning Vale, WA 6155
Karratha Add:
1938 Pyramid Road, Karratha, WA 6714
Singapore Add:
71 Toh Guan Road East, #02-01/02/06 Techcentre, SG 608598
www.statsaustralia.com.au

NOTES ABOUT YOUR REPORT

STATS prepared this report based on our understanding of you (the Client) and your project requirements. This report is developed based on a unique set of project conditions and requirements, such as the objectives of the project, the locality and size, as well as the feasibility of the development. These notes are meant to allow you to understand where our responsibilities as the engineers begin and end, and to assist you to manage and plan your construction, and mitigate any perceived risk. If there are areas in our report that you do not understand and would like to seek clarification, please contact STATS and we will assist you.

Our findings are based on limited subsurface investigation, sampling and testing works due to site constraints, underground service information and location, as well as project costs. Some variations to our findings may occur. It is therefore recommended, that we are engaged for the construction supervision and ongoing support based on either a site visit to confirm the accuracy/expectation of the conditions originally encountered, or that of full-time supervision.

Below are examples of conditions which will influence how this report is interpreted and therefore will affect the limitations of the report.

a) Subsurface conditions can be affected by events such as the removal of soil or placement of fill and by events such as seasonal fluctuations in ground water table, flood, earthquake and unstable landforms, all of which can change with time. It is therefore necessary when the above situations occur to undertake additional sampling, testing and/or analysis.
b) Any changes in the proposed development, layout, orientation, elevation, loading and configuration will affect the findings and recommendations in our report.
c) If information provided in the report is to be used by others, the report shall be produced in full and not in part.
d) This report is prepared for a specific purpose and is for the client or specific party involved in the initial project request. This report must be regarded as confidential to the Client and the Client's professional team. To prevent misunderstanding or misuse of information, it is recommended that you inform and discuss with STATS first before passing your report to a third party. STATS does not accept any responsibility for any damage caused by the decisions or actions made by third party.
e) This report has been prepared with no inclusions for environmental considerations, unless specified in our scope. If there are any known concerns or documents which relate to environmental risks at site, it is your responsibility to inform STATS and we shall advise where further information and/or contacts are required.
f) Our report has been prepared with no inclusions for environmental considerations, unless specified in our scope. If there are specific concerns or document in relation to environmental risks at site, it is your responsibility to inform STATS and we shall advise on further information and contacts.

STATS has prepared this report based on information provided by the Client and others. STATS disclaim responsibility relating to any unverified information provided, including errors in, or omissions from such information. The opinions, conclusions and recommendations in this report are based on, but not limited to, assumptions made in the project proposal and accepted scope of work.

Further attention is drawn to the information "Guidelines for the Provision of Geotechnical Information in Tender Documents", published by the Institution of Engineers, Australia. Whereby information or data obtained from the report is provided for tendering purposes, it is important that all information, including the written report, email correspondence and any discussions be made available. In the event that sections of the report are not relevant to the contractual document, it may be appropriate to prepare an edited executive summary document. Please contact STATS if you need assistance in this regard.

Appendices

Appendix 2: Visual Inspection and Photographic Survey at Clubhouse and Small Cottage

(No of pages including this page: 23)

Photo 1: Overall view from the South of the croquet clubhouse looking North. Observed sagging of the roof ridge beam.

Photo 2: Overall view from the North of the croquet clubhouse looking South. Observed sagging of the roof ridge beam.

Photo 3: Scaffold set up and inspection access point on the Western end of the croquet clubhouse.

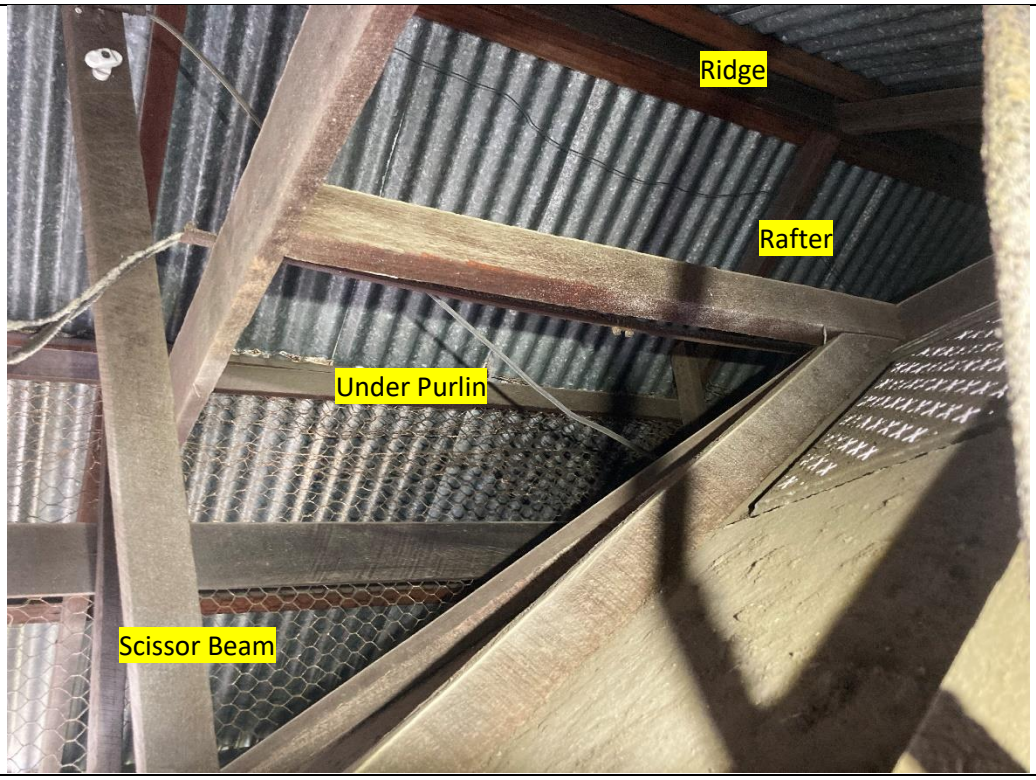


Photo 4: Overall view of the timber ridge beam, purlins and rafters.

Photo 5: Skylight at purlin prop to beam rafter connection. Widespread corrosion on the internal cladding.

Photo 6: View of the wall plate connection and timber eaves on the West side. Widespread corrosion on the internal cladding.

Photo 7: View of the rafter and beam connection – showing localised timber splitting.

Photo 8: View of purlin prop and localised corrosion on roof sheet.

Photo 9: View of the bolt connection to purlin prop.

Photo 10: Observed cracks on the pad footing.

Photo 11: Overall view of pad footings.

Photo 12: Overall view of floor beams and pad footings.

Photo 13: Scaffold set up and inspection access point on the Northern end of the croquet clubhouse.

Photo 14: Overall view of the roof condition. Widespread corrosion on the internal cladding.

Photo 15: Overall view of roof members.

Photo 16: View of roof sheets onto rafter support.

Photo 17: Overall view of cladding on the Northern end of the building – showing significant corrosion stains and localised defect.

Photo 18: A view behind the cladding showing internal timber frame condition.

Photo 19: View of the corrugated roof sheet, looking West.

Photo 20: View of the corrugated roof sheet, looking South – showing significant corrosion and rust.

Photo 21: Rafter condition, looking southwest.

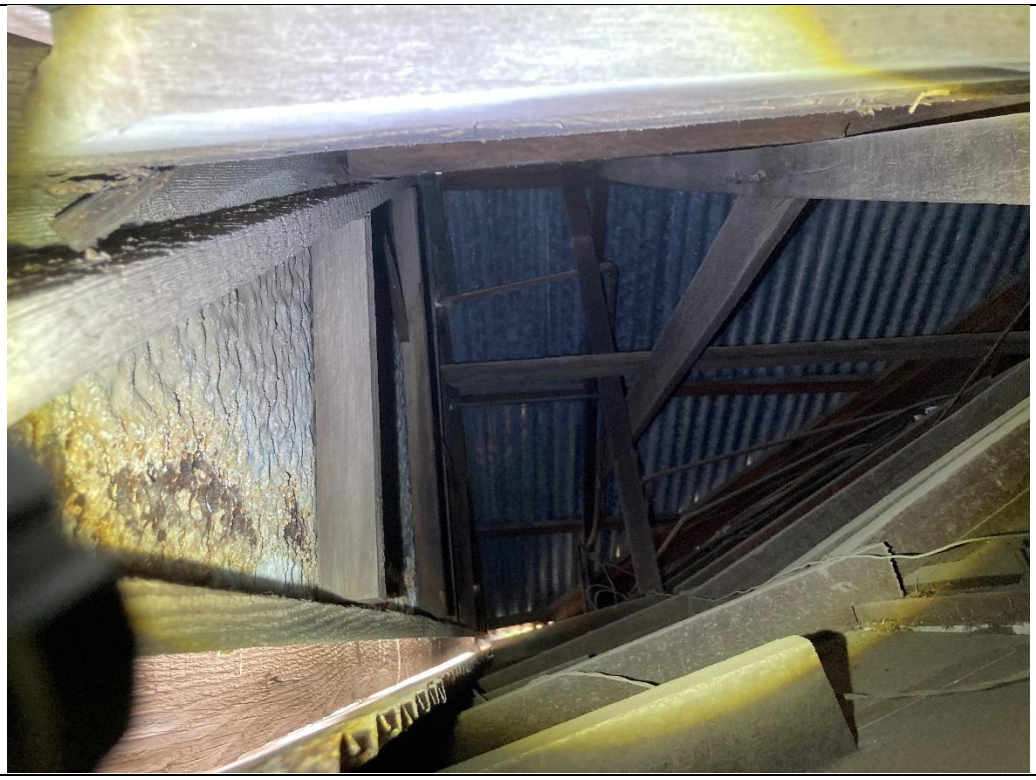


Photo 22: View of rafter beam, vertical posts and rafters, from North to South.

Photo 23: Overall view of the South side of the croquet clubhouse showing localised deformation on the cladding.

Photo 24: Transverse crack (refer to Photo 23).

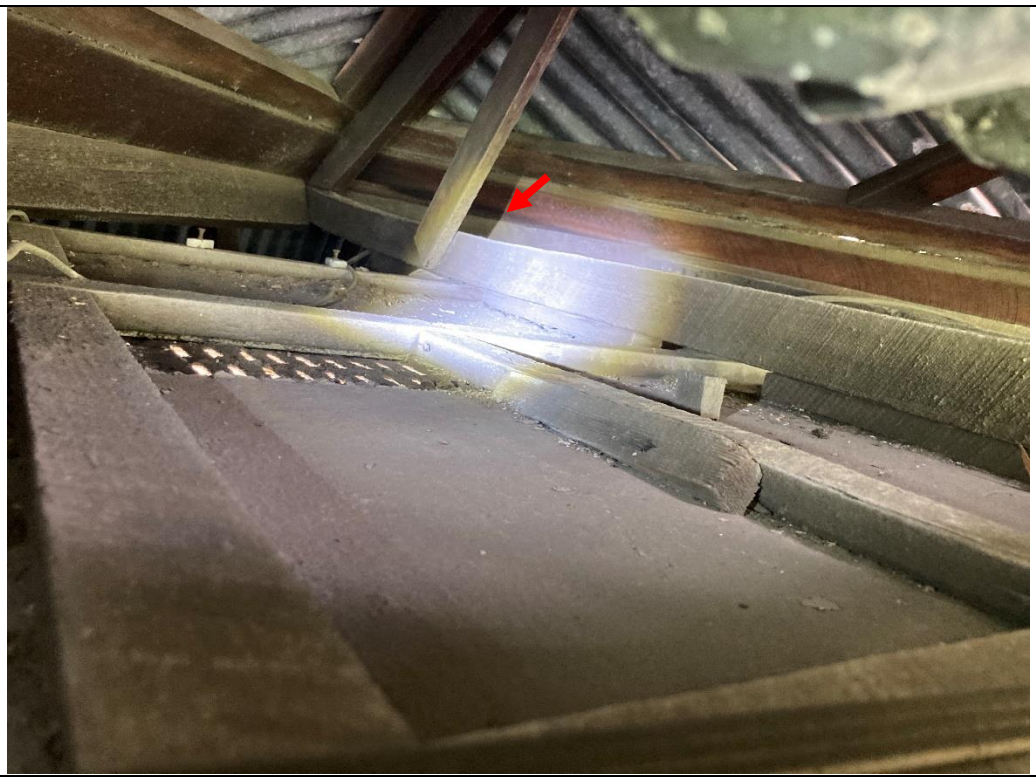


Photo 25: Observed sagged rafter.

Photo 26: Observed timber splits on the top plate, refer to Photo 23.

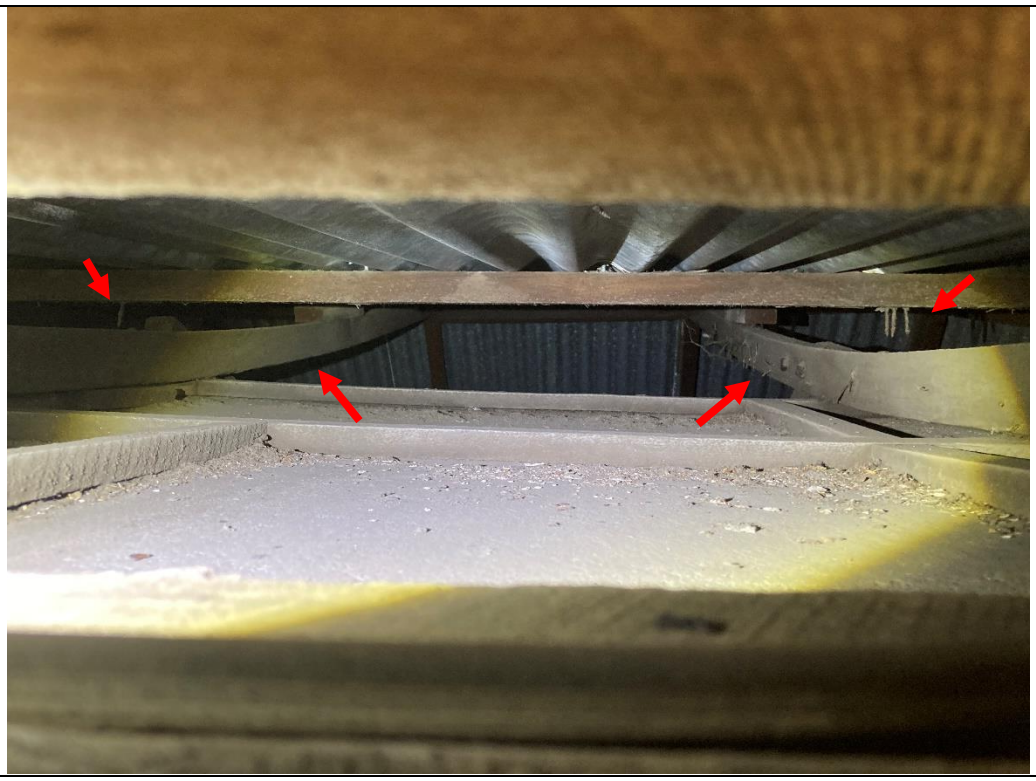


Photo 27: Observed sagging rafter beams and loosened nail connections to purlin.

Photo 28: Delaminated cladding to wall frame, refer to Photo 23.

Photo 29: Interior view, looking West. Observed Asbestos fibre cement sheeting product at the internal wall.

Photo 30: Interior view, looking East. Observed Asbestos fibre cement sheeting product at the internal wall.

Photo 31: Set up the platform and carried out roof inspection through the air vent. Inspectors were well-protected from asbestos by wearing the proper PPE.

Photo 32: Observed timber splits at nail connections.

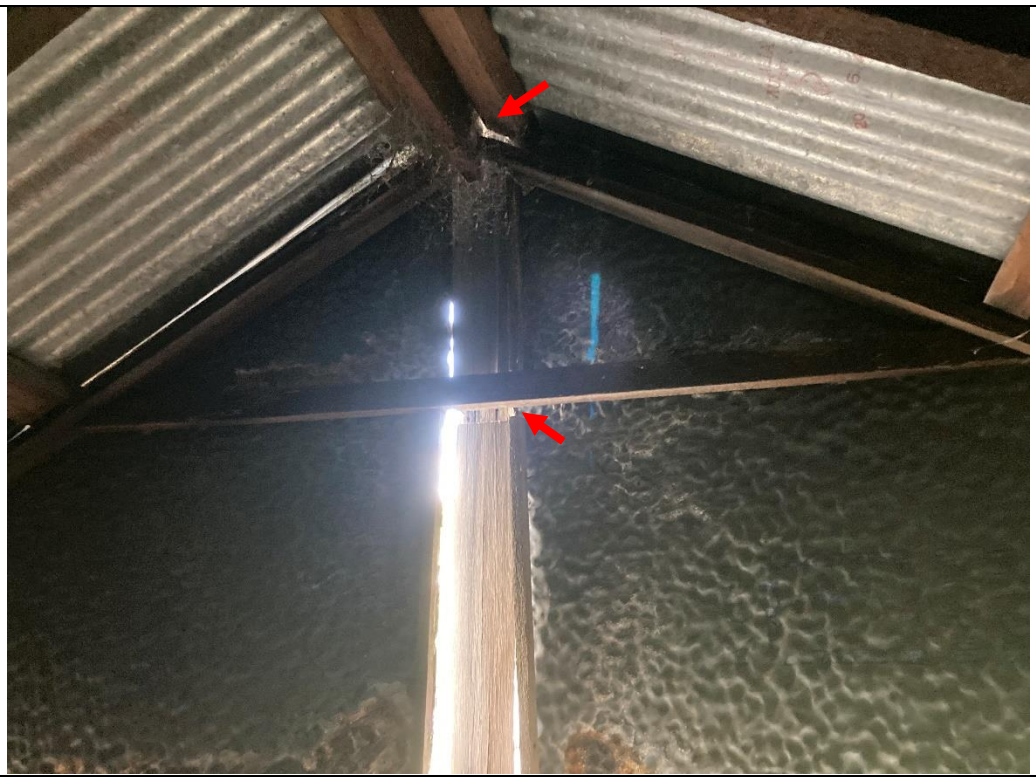


Photo 33: Observed skylight and timber split.

Photo 34: View of the stud and top plate. Localised corrosion on cladding sheet.

Photo 35: Set up the platform and carried out inspection through the air vent.

Photo 36: View of rafters beams.

Photo 37: Observed timber split at nail connection of the ceiling joist.

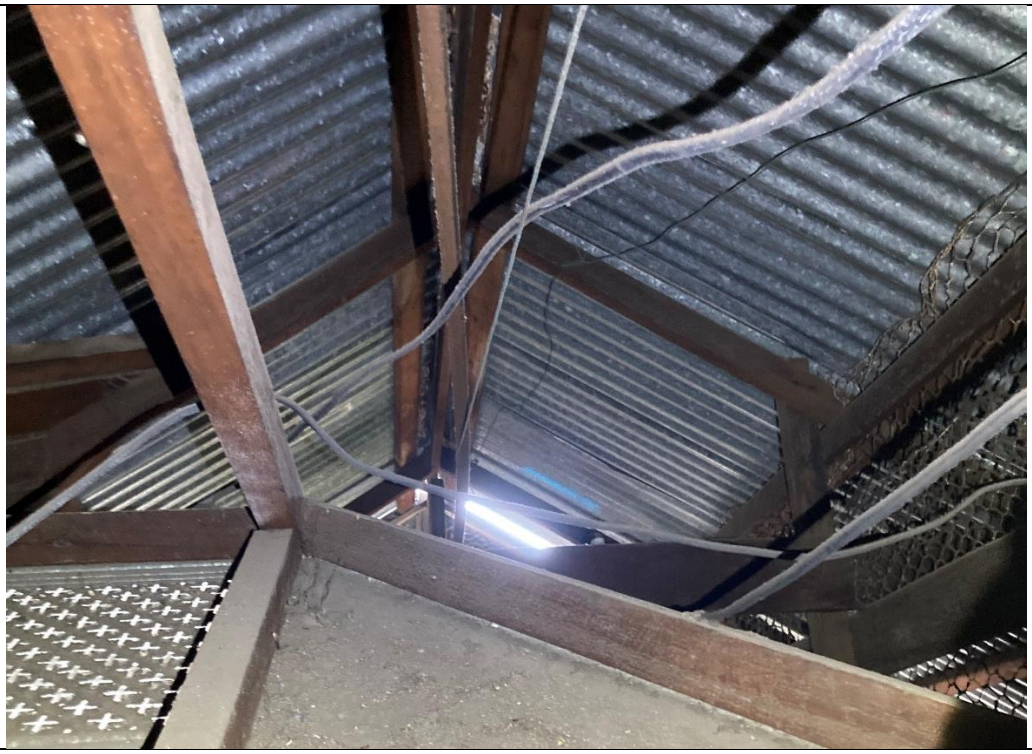


Photo 38: View of rafter elements, looking west.

Photo 39: Overall view of the small cottage, looking North.

Photo 40: Overall view of the cottage, looking South. Corrosion and rust stains on wall cladding.

Photo 41: Set up the platform and carried out the inspection.

Photo 42: Overall view of the ridge beam and rafters.

Photo 43: Overall view of the ceiling and rafters. Roofing sheets showing corrosion.

Photo 44: A close-up view of the roof framing work connection details.