STRUCTURES
MADE EASY LTD

Consulting Structural Engineers and Surveyors

Feasibility Study

Sample Report

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For	

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1. BRIEF

I confirm your instructions to carry out a structural inspection of the 3no. open-sided agricultural buildings collectively known as:-

xxx

In order to identify the suitability of the primary structure for incorporation into the permanent dwellings created within the enclosed space provided by each building.

2. LIMITATIONS OF THE REPORT

The Report is based on a visual inspection.

The requirement to obtain planning permission and other statutory consents for the building proposals and likelihood thereof are outside the scope of this Report.

3. CLIENT DETAILS

Name and address of client:	xxx
Name of purchaser:	xxx
Address of property inspected:	xxx
Reference:	xxx
Date of Inspection:	xxx
Weather:	xxx
Tenure:	xxx (to be confirmed by the solicitor/ conveyancer)
Agents dealing with property:	xxx

4. INTRODUCTION

The Report is limited to verifying the structural integrity of each building relative to the creation of residential accommodation within the enclosed space provided by each building.

5. OBSERVATIONS

The three open-sided buildings are provided for agricultural use and shelter only and comprise steel stanchions with haunched rafters and beams on shallow concrete pad foundations. The roof is formed of corrugated cement-fibre sheets; on timber purlins; on steel portal rafters at regular spacings.

The floor is formed of well compacted earth found in situ rather than imported material.

The proposed new accommodation involves the full utility of the primary structure.

Three trial pits have been excavated to verify the suitability of the ground to carry the transmitted loads from the proposed additional loading through the existing steel stanchions safely to the ground bearing strata.

6. THE SURVEY

Agricultural Building 1

The building is arranged with steel stanchions (8”x4”) on concrete pad foundations; on a regular grid with maximum spacing not greater than 4.5m around the perimeter.

A local capacity check on the stanchion shows that the total safe load capacity comfortably exceeds the proposed loading expected to be carried by each column. Further enhancements can be made to the steel structure by installing intermediate beams between the stanchions to support the proposed first floor as we would expect to be the case in the final design.

The ground condition relates to the observations noted in Trial Pit 3.

Agricultural Building 2

As Agricultural building 1

Agricultural Building 3

The building is arranged with steel stanchions (8”x4”) on a regular grid with maximum spacing not greater than 4.0m around the perimeter.

A local capacity check on the stanchion shows that the total safe load capacity comfortably exceeds the proposed loading expected to be carried by each column. Further enhancements can be made to the steel structure by installing intermediate beams between the stanchions to support the proposed first floor as we would expect to be the case in the final design.

The ground condition relates to the observations noted in Trial Pits 1 & 2.

TRIAL PITS SUMMARY

See attached drawing identifying location of trial pits

Trial Pit 1 – depth 900mm

There is approximately 600mm of well compacted soil overlying well rounded ballast with ground water entering the excavation at 900mm below ground level.

The ballast is well compacted and capable of providing a safe bearing pressure of not less than 150kPa.

Trial Pit 2 – depth 1000mm

There is approximately 500mm of well compacted soil overlying well rounded ballast with no evidence of ground water.

The ballast is well compacted and capable of providing a safe bearing pressure of not less than 150kPa.

Trial Pit 3 – depth 900mm

There is approximately 150mm of well compacted soil overlying approximately 200mm of broken tiles and brick hardcore, overlying well rounded ballast with no evidence of ground water.

The ballast is well compacted and capable of providing a safe bearing pressure of not less than 150kPa.

7. CONCLUSIONS

1. The existing primary superstructure forming each building can be fully integrated into the permanent design for residential use without alteration; although further columns could be added to suit the eventual design aspirations.

2. The steel frame can be significantly enhanced by adding intermediate beams to the stanchions, which would be expected to form the new first floor and provide enhanced lateral restraint necessary to strengthen the frame under the added loading. This supplementary steelwork is only necessary to locate the first floor and does not contradict the requirements of paragraph 105 of the NPPG that states, "*It is not the intention of the permitted development right to include the construction of new structural elements for the building. Therefore it is only where the existing building is structurally strong enough to take the loading which comes with the external works to provide for residential use that the building would be considered to have the permitted development right*."

3. The ground conditions are consistent across the site and are adequate to support the additional loading applied to each stanchion from the reconfiguration of the building providing a safe bearing pressure of circa 150kPa with a generally applied pressure not normally exceeding 100kPa for a two-storey residential building.

4. The new ground bearing slab can be thickened locally to locate masonry shear walls within the building to provide optimum creative use of the enclosed space by the architect.

8. APPENDIX

Photographs

Trial pit locations

Signed by

[SME Consultant]

Photographs – Trial Pit 3

Photographs - Trial Pit 2

Photographs - Trial Pit 1