



STRUCTURAL
DESIGN

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**EDGECOMBE GARAGE
Abson Road,
Abson, Wick, Bristol BS30 5TT**



**STRUCTURAL REPORT
ON
GARAGE BUILDING**

Date of inspection

28th November 2023

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1. Introduction

We were appointed by Mr Thomas Robb, trading as Edgecombe Garage, to report on the structural condition of the garage buildings at the property and their suitability for conversion to residential use.

This report is concerned only with this structural issue, all other aspects of the property are outside our report.

This report is prepared for the use of the above-named client in connection with a planning submission only and is not to be relied upon by third parties without our specific written authorisation.

No exposing work was carried out. This report is based on a visual inspection.

A site visit was carried out in the morning of 28th November 2023. Weather conditions were overcast but dry.

This report contains photographs of the existing garage building, both internal and external.

2. General Description

Edgecombe Garage is located in the small village of Abson in South Gloucestershire, midway between Wick and Pucklechurch. The garage itself is positioned on the southern edge of the village, serving the local community.

There are houses directly to the north of the garage. The remainder of the property is surrounded by open, rolling countryside, with the topography sloping downwards west to east.

The garage structure is single-storey and comprises three attached buildings which appear to have been constructed at different times.

The main garage workshop is set towards the front and centre of the plot and is 9.1m x 5.5m. This backs onto a second, much wider workshop area, which includes separate store rooms. This workshop measures about

8.5m x 6.0m. This part of the garage projects significantly beyond the northern side of the front workshop. Adjoining these two workshops is a longitudinal building housing an office space and another storage room. This occupies the southern flank of the garage buildings and measures 2.4m in width.

The main front building is thought to be early 20th century and faces due west towards the Abson Road.

3. External Observations

Roofing

The front garage workshop roof is mono pitched and falls from south to north. It comprises profiled single-skin metal sheeting which incorporates a roof light panel. The sheeting appears to be in very good condition with no obvious signs of damage. Strategically positioned counterweights have been positioned to guard against wind uplift, most likely during times when high westerly winds coincide with the main garage door in the open position. The front of this workshop roof is finished with a low-level masonry parapet, providing a horizontal roof outline appearance from the roadside.

The back workshop is also mono pitched and falls from west to east, with the eaves being along the back of the garage. The ridge, set along the interface with the front workshop, rises above the latter. The roof covering is similar to the front workshop.

The southern longitudinal office and storage area is similarly mono pitched, but falls from north to south, opposing that of the front workshop.

All roof areas appear to be in good condition, with no obvious signs of sagging or significant damage.

Walls & Openings

Most of the walls comprise rendered blockwork and brickwork. The render is a mixture of original pebbledash, smooth cement plaster and painted roughcast. The original limestone pebbledash is discoloured in places.

The walls appear to be in good condition throughout.

The front workshop wall contains a large sliding metal door, opening from north to south, providing full access to the front workshop. To the south of this, on this same elevation, is a timber personnel door which gives access to the office.

The projecting back workshop has a single-width up-and-over metal garage door facing west.

There are three windows facing north which serve the two workshop areas. The front two have precast concrete lintels above. There is a single window facing east, which serves the back workshop stores. There is a single window facing south, which is for the garage office.

4. Internal Observations

Roofing

The front workshop roof sheeting is carried directly on longitudinal timber purlins, 80mm wide x 60mm deep. These are supported on the end walls plus a set of three inclined timber roof beams. These beams measure 230mm deep x 80mm wide and span across the 5.5m width of the workshop. Most of the connections between purlin and roof beam have been made using metal joist hangers. Both the purlins and roof beams appear to be in good condition throughout, showing no visual evidence of decay, structural distress or excessive deflection.

The back workshop roof has 125mm deep x 75mm wide timber purlins equally spaced at approximately 1.35m. Intermediate roof support is provided by a series of four timber raking beams. These measure 230mm deep x 75mm wide and are set a varying spacings from 1.3m to 1.8m. In this workshop the purlins run over the top of the intermediate beams, leaving the latter unnotched which is structurally advantageous. Similar to the front workshop, all roof timbers appear to be in good condition, free of decay, structural distress and excessive deflection.

The south office and storage roof comprises traditional timber rafters spanning from eaves to ridge. These also appear to be good condition.

Walls

The majority of the walls are built in single-skin, solid concrete blockwork. The two workshops appear to comprise 150mm thick blockwork and the office and storage area 100mm thick.

The opening between the front and back workshop areas is formed by a 230mm deep x 170mm wide cast in-situ reinforced concrete beam. This beam is continuous across the external up-and-over garage door of the back workshop.

There is a personnel door and window between the front workshop and office / storage areas. These have precast concrete lintels.

These walls and lintels are mostly painted white. They appear in good general condition with no evidence of significant cracking or movement.

Floor

The workshop floors are concrete throughout. The front one has a vehicle service pit measuring 3.7m long x 0.8m wide x 1.4m deep. The walls of this pit, which act as retaining walls, have no significant cracks and show no evidence of lateral movement or settlement.

The back workshop has a larger, deeper service pit. However, due to limited access this was not measured nor inspected.

Although these floors have been in service as a garage for many years, they appear in good condition with no sign of settlement, significant cracking or distress.

5. Comments & Conclusions

Existing Structure

This is a typical single-storey garage building which is generally in good structural condition. There are no signs of significant cracking, movement or structural concerns.

At present the garage buildings are in a good state of repair. The roof structure is adequately sized for the current loadings, evidenced by the absence of significant deflections throughout the primary and secondary timber elements. The roof would benefit from the addition of vertical restraint straps around the eaves, allowing the counterweights above to be removed.

Due to the sloping orientation of the roof beams, any new horizontal ceiling would need to be added below. Keeping this ceiling structurally separate from the existing roof would eliminate any possible effects of cold bridging. The resulting ceiling void would provide the opportunity for further maximising thermal insulation performance.

Proposed Conversion

The proposed conversion is likely to include some or all of the following elements:

- Provision of cladding, glazing and replacement of the large garage door openings with smaller single or double domestic doors.
- New roof cladding and a suspended or independent ceiling beneath, including insulation and ceiling finishes.
- Insulation and finishes to the external walls. This could be done either internally or externally, with the latter approach having the benefit of maximising useable floor space.
- Insulation and floor finishes. This can be done above the existing concrete slab.
- Construction of non-loadbearing partitions supported on the existing floor slab.

- Creation of below-ground storage areas and/or a wine cellar within the existing service pits.

The conversion of these buildings can, in our opinion, be carried out without major reconstruction of structural elements.

We will be pleased to answer any questions on this report.

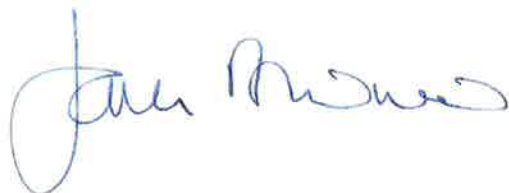
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14th March 2024

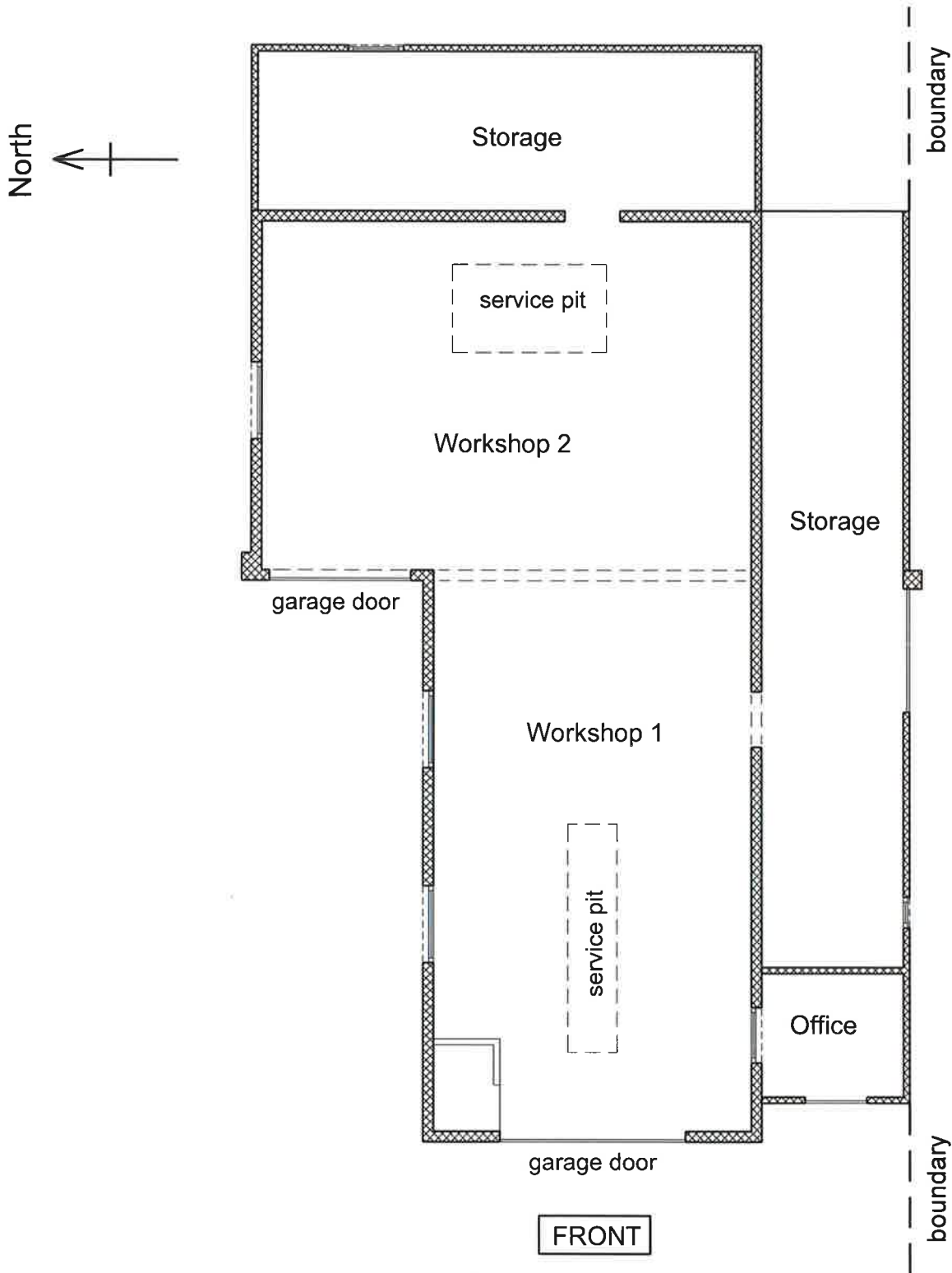
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James Birdwood MA CEng MICE FStructE

1067/ JGBB

DRAWINGS
&
PHOTOGRAPHS



Plan on Garage Ground Floor

Scale 1:100

Edgecombe Garage
 Garage Plan
 Scale 1:100 on A4
 1067/EG/SK01

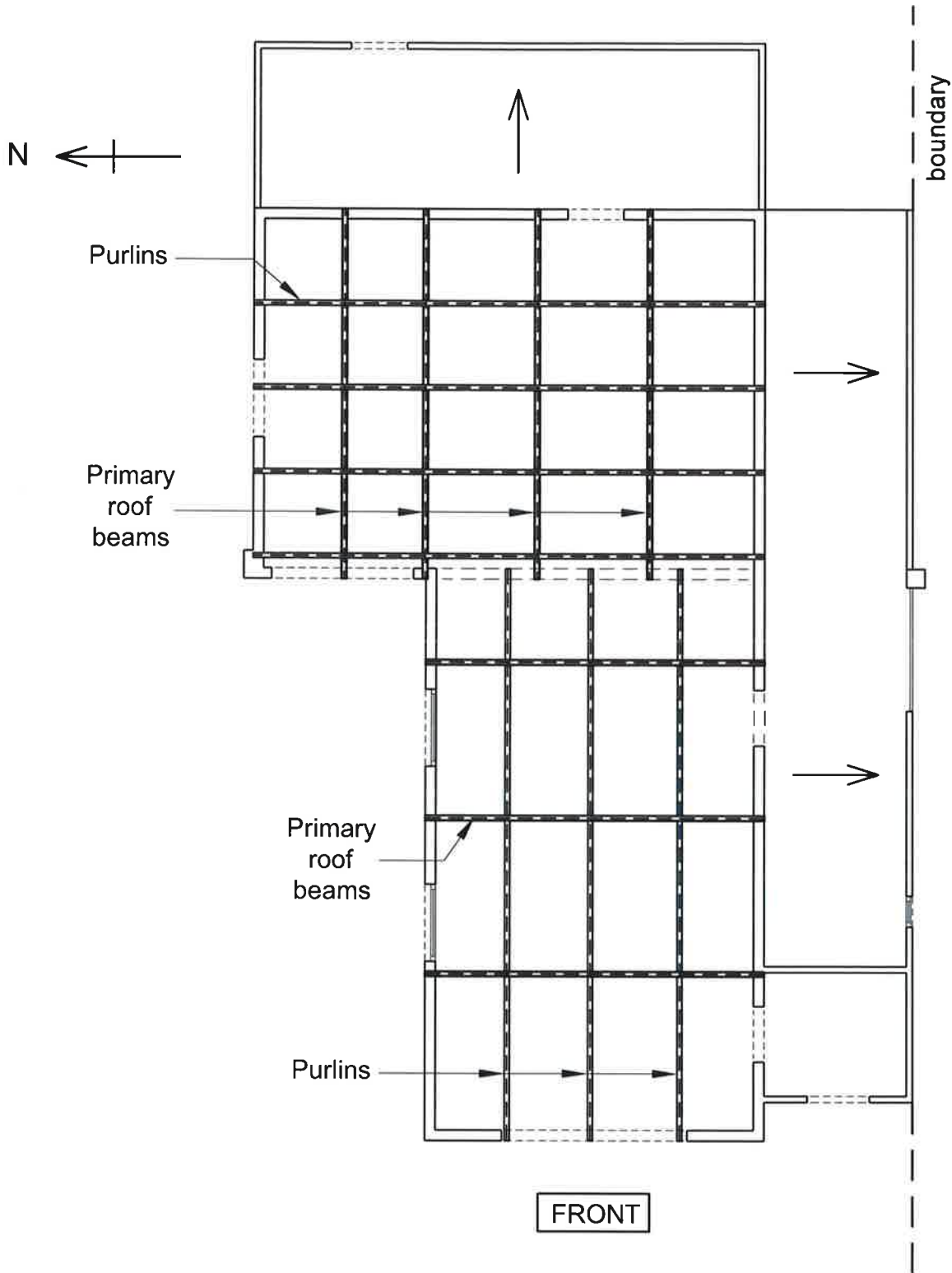


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Plan on Garage Roof Structure

Scale 1:100

Edgecombe Garage
 Garage Plan
 Scale 1:100 on A4
 1067/EG/SK02



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1: Front Elevation



2: South-East Corner



3: North Elevation of Workshop 2



4: East Elevation



5: Floor Slab at Main Entrance



6: Front Workshop Slab and Service Pit



7: Front Workshop Roof Structure



8: Concrete Lintel Between Workshops



9: Back Workshop Roof Structure