Design Note

Project:	**Rosslyn Hill Chapel – Replacement floor and heating project**	**Project No:**	**03591**
Prepared By:	**Rachael De'Ath**	**Date:**	**04/09/24**
Title:	**Replacement of existing structure**	**Distribution:**	**Ryan Bunce**

Introduction:

Rosslyn Hill Unitarian Chapel is an existing Grade II listed building, located adjacent to Rosslyn Hill, Hampstead, London.

Originally constructed in 1862, with the north aisle, chancel and committee room added in 1885. It is constructed of Kentish ragstone rubble with Portland stone dressings. It has a timber vaulted pitched roof, covered with slates.

The existing interior of the church originally contained raised pew platforms to some areas. These limit the use of the space and are to be removed in order to allow a more flexible use of the building. In order to provide a level, accessible floor throughout, some areas of existing floor structure will need to be lowered by 60mm to accommodate this.

The existing floor structure typically consists of timber boards and floor joists, supported by timber beams which span between masonry piers within the floor void. In some other areas, existing floor voids have been infilled with concrete. In these areas it will be necessary to remove the more modern concrete infill to enable the consistent floor level to be provided.

Discussion:

The existing masonry piers are constructed of brick and lime mortar and are likely to have been part of the original construction. In order to accommodate the new floor level, they would require modification.

Due to the age of the lime mortar, its likely deterioration and the need to adjust levels, it is proposed that the piers will be reconstructed, using modern blockwork and mortar.

The replacement blockwork piers will provide a structure with known load bearing capacity that is suitable to support the new floor structure and loading required.

Existing timber beams and joists of the floor structure are notched in a number of locations and are embedded into the masonry sleeper walls, to the perimeter of the sub-floor void. Due to the age of construction, there is no DPM or similar which would prevent the ingress of damp / water within the sub-floor void.

Notching of timber elements reduces their load bearing capacity by reducing the effective section of timber. Timber elements which are embedded within masonry construction which is not protected from moisture, are at risk of deterioration due to ingress of water and damp.

On this basis, it is not possible to accurately assess the condition or load capacity of the existing timber joists and beams. Therefore, it is proposed that structural timber floor will be constructed of replacement timber elements. The new design will avoid embedment within the masonry sleeper walls and will provide

protection to the timber on top of the masonry piers from water ingress in order to ensure the design is robust.

Figure 1 - Photos of existing timber floor structure

R. De'Ath.

Rachael De'Ath
MEng (Hons) CEng MIStructE MICE

For and on behalf of Marbas Consulting Engineers