

STRUCTURAL REPORT

Sydney Swans HQ and Community Centre

Prepared for APP / 17 April 2019

181978

Contents

1.0	Executive Summary	3
2.0	Main Structural Components of Proposed Works	3
3.0	Concrete Frame Mezzanine	3
4.0	Additional Basement Rooms and Access Corridors	3
5.0	External Suspended Terrace Slab	4
6.0	20m Lap Pool, Plunge Pool, and Hot Spa	4
7.0	Swifts Building.....	4

1.0 Executive Summary

This report lists the main structural components of the Sydney Swans HQ and Community Project. It highlights how the new structures have been designed to sit alongside the existing Royal Hall of Industries (RHI) building and neither change existing loadpaths within the RHI or impose any new vertical or lateral loads upon the existing structure, thereby maintaining the existing RHI's level of structural adequacy.

2.0 Main Structural Components of Proposed Works

The main structural components of the proposed works include:

- Concrete framed mezzanine slab constructed within the existing RHI.
- Additional basement room and access corridors created at the south western corner of the existing RHI.
- External suspended terrace slab located at the south end of the RHI, accessed from southern end of new mezzanine
- A 20m lap pool, plunge pool, and hot spa located external to the south of the existing RHI.
- Two-storey mixed use building within the southern courtyard. The building will be occupied by the NSW Swifts and will include a full-size netball court, administration spaces and rehabilitation rooms.

3.0 Concrete Frame Mezzanine

The new mezzanine will be framed from post tensioned beams and slab, supported by concrete columns and lifts shafts. The columns and walls are supported on either pad footings on rock, or piled footings on rock where the rock depth is too deep to install pad footings. The structural system is designed to act as a sway frame and is not reliant on the existing RHI structure for any vertical or lateral support.

Locally, one bay of existing timber purlins is proposed to be removed near grid N2/NF-NG on the eastern face of the western most roof truss to allow a cooling tower plant platform to be constructed. Lateral bracing to the existing roof trusses will be maintained by the existing timber roof purlins still in place to the north and south of the proposed penetration. The new plant platform and plant units are to be supported from new structure supported from the new mezzanine structure and does not impart additional loading to the existing RHI structure.

4.0 Additional Basement Rooms and Access Corridors

Extensions to the existing basement area in the south west of the RHI will require new perimeter reinforced block retaining walls and a new suspended ground floor slab over.

5.0 External Suspended Terrace Slab

The new terrace slab will be framed with post tensioned beams and slab. It will be supported on concrete columns founded on bored piers. The terrace slab will be stabilised with frame action of the beams, slabs, and columns and will be independent from the RHI and not exert any lateral or vertical loads onto the existing structure.

Piered footings will ensure that no surcharge loads are imposed on the existing boundary retaining wall.

6.0 20m Lap Pool, Plunge Pool, and Hot Spa

Each of the three pools are to be designed as suspended structures supported by bored piers. This will ensure no surcharge loads are imposed either on the existing boundary retaining walls or the southern wall of the RHI.

The concourse slabs making up the area between the pools are suspended slabs, sitting on corbels cast into the pool walls and bored piers.

7.0 Swifts Building

The Swifts Building is to be comprised of a post tensioned flat plate structure supported by concrete columns. All footings will be piered to rock and will not surcharge the existing boundary wall or southern wall of the RHI. A large clear span truss supports the steel roof framing over the netball court. Footings supporting this element will be piered.

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