



15 October 2013

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NORWEST HOSPITAL

PRELIMINARY STRUCTURAL ENGINEERING REPORT

Taylor Thomson Whitting have been engaged by Healthscope Ltd to provide structural engineering services for the Norwest Hospital Project.

This report has been prepared to accompany an Environmental Impact Statement prepared under Schedule 2 of the Environmental Planning and Assessment Regulation for an application for State Significant Development [SSD 13_6074]. This report specifically addresses the following relevant matters associated with the Director General's Environmental Assessment Requirements issued under Section 78A(8A) of the Environmental Planning and Assessment Act of 1979.

1. Existing Conditions

The proposed building area occupies the north west corner of the current Norwest Hospital site, currently occupied by 2 levels of carparking.

We have obtained structural drawings for the existing carpark and note

- The suspended carpark is a post tensioned flat slab system, supported on 300mm diameter reinforced concrete columns and bored pier foundations.
- The foundations vary from approximately 7m to 12m long and found in a medium to high strength rock. Piers are 450 mm diameter.
- The lower level carpark is a reinforced concrete slab on ground.

2. Proposed Structure

The new structure comprises an additional four levels above the existing carpark level, including a concrete roof slab.

2.1 Foundation/Support Systems

Our design checks indicate that the existing columns and footings do not have sufficient capacity to carry the new loads, and therefore strengthening works are required. We have investigated a number of options, and the preferred solution is to install new piles and pile caps, and demolishing and rebuilding new columns.

This solution has the advantage of maintaining the columns within the carparking envelope required by AS2890, whereas strengthening options would potentially intrude into this envelope.

Discussions have been held with piling contractors to verify the method of installation of the new foundation piles, and we confirm this is feasible. A staged approach to column/foundation works will be required to maintain carparking numbers.

A similar method of construction was successfully carried out on recent projects designed by TTW, including the Winston Hills Shopping centre.

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2.2 Suspended Structure

The new suspended structure above the carpark is proposed to be a post tension banded slab solution, which is typically the most economical structural system for a hospital such as this. To follow the carparking layout, the structural grid will be 8.1m by 8.5m.

The final slab design will be determined during the detailed design process, in conjunction with architectural and engineering services requirements.

Lateral loads (wind/earthquake) will be determined in accordance with AS1170 SAA Loading Code, and transferred to the foundations through the primary lift/stair core.

Design will be in accordance with the relevant requirements of

AS3600	Concrete Structures
AS4100	Steel Structures
AS3700	Masonry Structures
AS1170	Loading Code

3. Summary

The proposed extension to Norwest Private Hospital has been reviewed and is structurally feasible.

- Existing foundations and columns will need to be upgraded. We have investigated options and the proposed solutions are feasible, and are similar to recent projects that have been completed.
- The new structure is proposed to be a post tensioned slab system, with a post tensioned slab at the roof level.
- Lateral loads will be carried by the main core wall system.

Prepared and Authorised by
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