SYDNEY ADVENTIST HOSPITAL REDEVELOPMENT

CIVIL ENGINEERING
PART 3A REPORT

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ISSUE A

REVISION	DATE	ORIGINATOR	CHECKED	APPROVED	REMARKS
A	16 June 2010	AM	ES	PT	For Review

CIVIL ENGINEERING WORKS

EXECUTIVE SUMMARY

In summary, the structural and civil engineering works required for the proposed development will generally comprise the following:

1. Sediment and Erosion Control
   - To protect local drainage systems from pollutants generated during construction activity.
2. Bulk Earthworks and Soil Contamination:
   - To provide a suitable foundation for the proposed structure.
   - To provide a suitable subgrade for pavement construction.

   Site contamination investigation was undertaken by EIS in April 2009. The soil samples analysed were generally lower than the relevant regulatory guideline criteria. The report stated that the risk to human health and the environment associated with soil contamination on the site are low in context of the proposed use of the site.
3. Stormwater Drainage and Stormwater Quality:
   - To provide a stormwater collection and conveyance system incorporating on-site stormwater detention to ensure that stormwater runoff from the site does not have a detrimental effect on the proposed development, neighbouring properties and downstream drainage systems.
   - To provide stormwater quality improvement devices as part of the stormwater drainage system to ensure that stormwater pollutants are removed from stormwater runoff prior to discharging from the site to ensure there is no detrimental effect on the downstream drainage system and receiving waterway.
   - To provide a lawful point of discharge from the development site.
   - All rainwater re-use to be designed and detailed by the services consultant.
4. Roads and Carparking:
   - To provide entry and exit points to the site.
   - To provide sufficient carparking for the development.
   - To provide all weather access to the proposed development.
5. Pedestrian Walkways, Footways and General Site Regrading:
   - To provide accessible roads, car parks, pedestrian links and landscaped areas throughout the site.
   - The proposed civil engineering works will be designed and constructed in accordance with Council and the relevant Service Authorities standard and requirements, Building Code of Australia and the relevant Australian Standards.

1. DESIGN STANDARDS AND CODES

The civil engineering works will be designed in accordance with the latest issue of all relevant design standards, codes and other statutory and authority requirements. As a minimum requirement, the design will be based on but not limited to:

- Council's Civil Works Specification
- Council's Water Management Development Control Plan
- Managing Urban Stormwater: Soils and Construction Manual
- Australian Rainfall & Runoff
- Australian Water Quality Runoff
- AS 3500.3 Stormwater Drainage
- AS 2890.1 Off Street Car Parking
- AS 2890.2 Commercial Parking Facilities
- AS 1742 Manual of Uniform Traffic Control Devices
- New South Wales Roads & Traffic Authority (RTA) Traffic Control at Worksites manual
- Austroads – Pavement Design, A Guide to the Structural Design of Road Pavements

2. GROUND WATER

The Geotechnical report (Jeffery & Katauskas Pty Ltd, April 2009), advises that groundwater seepage is expected in the deeper excavation areas but should be satisfactorily controlled by conventional pump or gravity drainage systems as appropriate.

3. SEDIMENT AND EROSION CONTROL

Temporary sediment and erosion control measures will be designed to be incorporated into the construction works and sequencing of the project to ensure that the proposed construction activities on site do not pollute local drainage systems nor have a detrimental effect on downstream waterways.

4. BULK EARTHWORKS AND SOIL CONTAMINATION

Refer to the Geotechnical Report by Jeffery & Katauskas, April 2009 and Environmental Site Assessment by EIS, April 2009.

All excavation batters shall be inclined according to recommendations in the geotechnical report. All vertical excavation faces will be completely shored to support all external ground.

The site was investigated by EIS in April 2009.

Based on the results of this investigation it is considered that the risks to human health and the environment associated with the soil contamination at the site are low.

The site is therefore considered suitable for ongoing use and the proposed development.

5. STORMWATER DRAINAGE

Stormwater drainage for the site will be designed to collect and convey stormwater drainage via a conventional piped stormwater drainage system for storm events up to and including a 1 in 20 year Average Recurrence Interval (ARI) storm event.

On-site stormwater detention (OSD) will be provided in accordance with Ku-ring-gai Council's requirements.

The site is not affected by flooding or external overland flow paths. Provision will be made for the safe conveyance of storm flows via overland flow paths within the development site for storm events up to the 1 in 100 year ARI storm event. Adequate freeboard will be provided within defined overland flow paths within the development site to allow some protection from overland flows generated from storm events larger than a 1 in 100 year ARI event.

Stormwater pollution control devices will be incorporated into the site stormwater drainage system to assist with the removal of sediment, oils and hydrocarbons from stormwater runoff from the road and carpark areas.

Concept Stormwater Drainage Plan and a Stormwater Management Report have been provided as separate documents.

All rainwater collection for re-use will be designed and detailed by the services consultant.

6. ROADS AND CARPARKS

Design and document the new roads and footpaths so that the geometry complies with the relevant standards.

Swept turning paths of suitable design vehicles will be reviewed and considered in the design.

Design and document traffic control staging plans in accordance with the RTA's Traffic Control at Worksites manual. This will allow staging of the construction works while maintaining vehicular access to hospital facilities during construction of the civil works.

7. PEDESTRIAN WALKWAYS / FOOTWAYS AND GENERAL SITE GRADING

Design and document the proposed pedestrian walkways and footways within the hospital site. Locations and treatments shall be provided by the architect and landscape architect.

Design and document the grading of site areas between the buildings and roads to ensure that the areas are adequately drained.

Design and document pedestrian control staging plans in accordance with the RTA's Traffic Control at Worksites manual. This will allow staging of the construction works while maintaining pedestrian access to hospital facilities during construction of the civil works.

APPENDIX A

STATEMENT OF COMMITMENTS

CIVIL ENGINEERING WORKS

Stormwater Drainage and Water Management

Measures to control soil erosion and sedimentation during demolition, excavation and construction will be designed in accordance with the current accepted industry standard, viz. "Managing Urban Stormwater: Soils and Construction Manual";

- Stormwater disposal system will be designed in accordance with the relevant Council and Australian Standards as applicable;
- Stormwater runoff will be collected by a conventional pit and pipe type drainage system with larger stormwater flows being conveyed safely through / around the development using overland flow paths such as roads and footways;
- On-site Stormwater Detention will be designed in accordance with Ku-ring-gai Council's requirements;
- Stormwater Quality Improvement Devices (SQIDs) will be designed in accordance with Ku-ring-gai Council's requirements for pollution reduction;

Roads and Car Parking

- Roads and other traffic based elements will be designed in accordance with the relevant Council or RTA standards as applicable and the relevant Australian Standards;
- Car parking and loading bays will be designed in accordance with the relevant Australian Standards.