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CIVIL AND STRUCTURAL
ENGINEERS

www.scpconsult.com.au ABN 80 003 076 024
LEVEL 2 - DANCHEN HOUSE, 507 KENT STREET SYDNEY
PO BOX A2002 SYDNEY SOUTH NSW 1235 AUSTRALIA
EMAIL ADDRESS - mail@scpconsult.com.au
TEL (02)9267 9312 FAX (02)9261 5871

DIRECTORS
PJ TRICKETT, BE(Hons), Dip Tech, MIE Aust, CPEng
BJ KING, BE, NZCE, MIE Aust, CPEng
P SIEWERT, BE(Hons), MIE Aust, CPEng
D TEMPLETON, BE(Hons), MIE Aust, CPEng, RPEQ

CONSULTANT
TJ HOGAN, BE(Hons), MEngSc, MBA, Grad Dip Man, FIE Aust, CPEng

Health Infrastructure NSW Health
Level 8, 77 Pacific Highway
NORTH SYDNEY NSW 2060

Campbelltown Hospital Redevelopment Stage 1 – DA Report

Structural Engineering

The following is an overview of the structural engineering design for the Campbelltown Hospital Redevelopment.

The proposed development consists of four building components, namely, the new Acute Hospital Building, the high level link over the existing Cancer Therapy Centre, the refurbishment of the existing hospital building and a new loading dock.

The proposed new Acute Hospital Building will be a concrete framed building, consisting of post-tensioned floor slabs, using a one-way slab band. The floors will be laterally braced by lift and stair shafts and concrete columns provide the vertical support.

The intention is to design each typical floor with sufficient flexibility to allow the floor use to be interchanged in the future.

The level 5 roof slab is being investigated for a potential future helipad, and is linked to the main lift core. Level 4 slab will support the plant and equipment servicing the typical ward floors.

The lowest building level (level 0) will be excavated into the ground, with permanent perimeter shoring / retaining walls. To avoid permanent ground anchors, the building structure will be designed to resist the lateral ground forces. The level 0 ground slabs will be poured directly onto ground.

The concrete columns and lift / stair shafts will be supported on bored piers founded on rock.

A concept design for a high level link structure has been evaluated for a clear span and a multi-span options. The multi-span option requires decanting and re-building a portion of the Cancer Therapy Centre.

Both options were proposed to be constructed from structural steel framing with a concrete floor slab supported on bondek formwork. The clear span option consists of a tubular steel truss. The multi-span option consists of a post and beam construction, using conventional universal beam members.

The steel columns will be supported on bored piers founded on rock.

All steel framing will have applied coatings to achieve the required fire rating.

The refurbishment to the existing hospital will require thorough co-ordination with services consultants requesting penetrations through the existing structural floor slabs. Where possible, existing structural drawings will be sourced, otherwise, site surveys will be undertaken to identify the structural framing.

Portions of the existing hospital have been replanned, and some rooms now house vibration sensitive imaging equipment. The existing building structure will be assessed for its dynamic stiffness.

Civil Engineering

The Civil engineering components of the Campbelltown Hospital Redevelopment comprises the following:

- Visitor and staff car park accessed off Parkside Crescent
- Earthworks for new loading dock and basement to Acute Hospital Building
- New Parkside Crescent footpath

The area of the proposed Acute Hospital Building will require clearing and grubbing to remove the existing vegetation from the landscape area.

Topsoil will require removal to a nominal depth as determined by future geotechnical investigation. The removed topsoil should be stockpiled on site so that it can be reused on external landscape areas.

Earthworks will be required to construct the undercroft area for the proposed building and site regrading will be required to form access and drainage paths. As the majority of the earthworks for this stage will be excavation (cut) to construct the basement, there will be little opportunity to lose the cut material on site in fill areas.

Generally, earthworks should be designed so that a balance can be achieved between cut and fill wherever possible.

Shoring will be required for excavations in the vicinity of the existing buildings as there will be insufficient room available for temporary batters without compromising the stability of the foundations of the existing buildings. It may be possible to construct temporary batters for the undercroft construction in areas away from the existing buildings.

The proposed new staff/visitor car park and Patient Drop-off Area is to be constructed over part of the existing hospital road and part of the existing car park.

An additional access road will be provided off Parkside Crescent to the north of the proposed building works and new forecourt and patent drop off areas will be constructed off the new access road.

The new roads will be constructed as flexible pavement with asphaltic concrete wearing courses.

Footways will be constructed of reinforced concrete or pavers and are subject to future architectural and landscape considerations.

As part of the earthworks, the site will be regraded to ensure that there are defined overland flow paths around and away from the proposed building.

The proposed building is to be constructed over a part of the existing hospital road and part of the existing car park. The existing stormwater drainage systems will need to be diverted around the new building.

New stormwater drainage will be provided where required to drain the new building, road and car park areas. The existing site drainage systems will be utilised wherever possible.

On site stormwater detention (OSD) will be provided (if required). If sufficient landscape area is available, (OSD) can be provided as an above ground basin with bio-retention for water quality treatment.

If there is insufficient landscape area available for a basin, then a detention tank can be constructed as part of the building structure or beneath one of the road or car park areas.

For this project, we don't believe that OSD storage on the surface of forecourt paving areas is practical as this area potentially have high pedestrian activity.

Stormwater quality improvement devices will need to be installed or constructed as part of the development.

Upon completion of the new Acute Hospital Building and all associated in-ground services and civil pavements, new concrete footpaths will be installed along Parkside Crescent. The footpath shall be specified and constructed in accordance with Council's Standards.

Yours faithfully
SCP CONSULTING PTY LTD

Peter Trickett
Director