

Health Infrastructure

Darcy Road Multi-Storey Car Park

SSD Application Electrical Services

MSCP-REP-10

Issue 2 | 29 October 2015

This report takes into account the particular instructions and requirements of our client.

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1 Introduction

This report provides an overview of the proposed electrical services design of the Darcy Road Multi-story car park at Westmead Hospital for inclusion in the state significant development (SSD) application.

2 Scope of Works

- 11kV electrical supply feeder from Redbank House substation
- Extension of existing power and comms conduits from North side of Institute road to the new car park
- New 500kVA substation
- Fibre and copper connection from the existing hospital
- New main comms room within the car
- Main LV switchroom
- Submains cables
- Distribution boards
- Floor comms cupboards and racks
- Small power
- Internal and external lighting
- Emergency lighting and exit signage

3 Energy Efficiency Measures

- Motion detection control of internal lighting
- Day light sensing and time clock control of external lighting
- High efficiency LED luminaires
- Coordinated Plantspace planning to reduce cable power losses
- Sub metering of distribution boards including separate lighting and power metering

4 Utilities

4.1 Electrical Supply and Substation

The multi-story car park will be provided with a new private chamber substation to be located on level 1 of the new car park. The substation will be rated at approximately 500kVA 11kV/400V. Maximum demand calculations have been completed based on AS/NZS 3000.

The substation will be supplied at HV from the existing Redbank House kiosk substation which in turn is fed direct from the zone substation. Outside the scope of work and under a separate planning application, Endeavor Energy have been consultant to enable the zone substation capacity to be increased with sufficient capacity to accept the new car park. The first stage of these works is complete and the second stage will be complete in time for the car park substation connection.

4.2 Communications Lead-in

The car park will be connected to the existing hospital core node X2 via a 24 core single mode fibre and a 24 core multimode fibre. A 25 pair copper connection will be provided from the existing hospital PABX room. The car park will be provided with sufficient in ground conduit links to enable future back-up connection to the future acute services building.

4.3 In ground works

Outside the scope of work and under a separate planning application, conduits for electrical power and communications are being installed to the North side of institute road. As part of this package, conduits will be extended to the new car park. Additional conduits will be installed along the length of Institute Road for the future power and comms connections.

4.4 Demolition

The proposed car park site is generally free from existing services. Demolition will include removal of existing column lighting.

The existing cooling tower compound and associated campus fire pumps are to be demolished. This will require the existing electrical supplies to be removed and isolated at the MSSB within the existing CEP.

5 Electrical Services

5.1 Distribution

A new main switchroom will be constructed on level 2 above the substation to meet the requirements of AS/NZS 3000.

The on-grade car park will be provided with a new distribution board to be supplied from the MSCP main switchboard.

5.2 Lighting

5.2.1 General

Lighting will be provided to meet AS/NZS 1680, AS/NZS 1158 and AS/NZS4282.

5.2.2 Multi Storey Car Park

Lighting within the enclosed car park will be surface or suspended high efficiency LED lighting with motion detection. The roof top parking area will be illuminated via column mounted LED luminaires controlled by day light sensors. Column luminaires will be selected with zero upward light component to avoid light pollution and obtrusive light.

5.2.3 Institute Road Lighting

Institute road will be widened as part of the car park development. The existing column lighting will be removed. New column lighting will be provided to match the luminaires selected as part of the early works package. Lighting will include energy saving daylight sensors such that lighting is automatically switched on or off based on ambient lighting level.

5.2.4 Pedestrian Links

Column lighting will be provided to ensure sufficient lighting is provided to the pedestrian links from the car park back into the existing Adult Hospital.

5.2.5 Ongrade Car Park

New lighting will be provided to cover the on-grade car park located on the original Coroners Court site. Lighting will also be provided to the associated roads linking to Institute Road.

5.3 Emergency Evacuation Lighting

Emergency lighting will be provided to all areas in accordance with the BCA and AS2293. This lighting will include:

- Non-maintained emergency fittings
- Illuminated exit signs

In general emergency lighting will be dedicated, single point, LED luminaires within self-contained 90 minute batteries.

The system will be centrally monitored by the existing hospital headend system with functionality to carry out the mandatory monthly, 6 monthly and annual testing.

6 ICT Services

6.1 Main Comms Room

A main comms room / building distributor will be located on level two adjacent to a main comms riser. The main comms room will act as an entry facility for communications lead-ins and as a building distributor for the floor comms cupboards.

6.2 Floor Comms Rooms

Floor comms rooms will be arranged to ensure complete coverage of all internal areas. Floor comms rooms will serve multiple floors.

7 Security Services

7.1 Access Control

Access control will be provided based on the selected car park operator requirements. The proposed system will be integrated into the existing campus access control system.

7.2 Intercom

Intercom will be selected to integrate in to the new intercom system provided as part of the early works. This was specified to be an IP based system.

7.3 CCTV

The existing Hospital CCTV system will be expanded to include the new car park. Cameras will be IP based and will record on a new DVR to be located in the existing data centre. Cameras will be agreed with the LHD, but are expected to be located at high risk areas such as lifts, lift lobby, payment machines, boom gates, car park entrance and exits.

7.4 Duress

Duress / help points will be located at key strategic psotions to be agreed with the LHD. This is likely to be at entrances, boom gates, lift lobbies, pay stations and high traffic pedestrian links. Duress buttons will be linked to the intercom system and will communicate with Westmead Hospital 24 hour security services.

