

Paediatric Services Building at The Children's Hospital at Westmead SSDA No. SSD-10349252

External Lighting Strategy

Electrical Services

Prepared for: Health Infrastructure C/ PwC

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Revision

Revision	Date	Comment	Prepared By	Approved By
1	02/11/20	Draft Issue	AW	RBAR
2	26/11/20	Final Issue	AW	RBAR

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1. Introduction

Stantec has been engaged by Health Infrastructure NSW to prepare an external lighting strategy report for the proposed Paediatric Services Building (PSB) at the Children's Hospital at Westmead located on Redbank Rd, Westmead NSW 2145.

1.1 Proposed Development

The proposal seeks consent for the construction of a new **Paediatric Services Building (PSB)** to be located adjacent to the CASB, and on the site of the decommissioned P17 car park, including development of the Hawkesbury Road forecourt and access links. This includes works associated with CHW forecourt on Hawkesbury Road to provide improved community amenity in the form of a new front entry, improved street frontage and enable a more cohesive main entrance connecting existing CHW, adjoining research facilities, and the PSB.

The scope of proposed works includes:

- Construction of the main PSB:
 - The main PSB may contain the following uses: perioperative and interventional services, neonatal and paediatric intensive care units, cancer centre, acute inpatient beds, back of house and parent facilities; and
- Alterations and additions to existing CHW KR and CASB buildings adjoining PSB site area to accommodate floor realignment and movement corridors
- Construction of a new pedestrian canopy link through KR, connecting the main PSB with the CHW forecourt and existing hospital entrance
- The canopy link is to be lifted 2 storeys above the CHW forecourt
- A new ground plane / forecourt landscaped area extending from Hawkesbury Road to the proposed PSB
- Tree removal to accommodate the construction of the PSB

1.2 SEARs Requirements

This report addresses the requirements outlined in the Planning Secretary's Environmental Assessments Requirements (SEARs), issued 20 November 2020 for application SSD-10349252 Paediatric Services Building at The Children's Hospital at Westmead.

The specific requirement addressed in this report is Item 5:

- **5. Environmental Amenity**

Provide an analysis of proposed lighting that identifies measures to reduce spill into the surrounding sensitive receivers.



2. External Lighting Strategy

2.1 General

LED light fittings will be provided to external areas associate with the new PSB building including external building surrounds, access roads and pedestrian pathways.

Note: The final lighting design is subject to detailed design processes post approval of SSD-10349252.

External light fittings will be controlled via photoelectric cells (PE cells) to automatically switch on and off at pre-determined lighting levels.

External lighting will be designed to comply with the following standards:

- AS/NZS 3000 – Electrical installations “Wiring Rules”
- AS/NZS 4282 – Control of the obtrusive effects of outdoor lighting
- AS/NZS 1158.3.1 – Pedestrian area (Category P) lighting – Performance and design requirements

In order to address SEARs Item 5, outlined in Section 1.1 of this report, the external lighting design will give due consideration to the following:

- Lighting based on Crime Prevention Through Environmental Design (CPTED) principles
- Minimisation of external lighting spillage to adjacent sensitive receivers
- Energy efficient lighting
- Aesthetically suitable lighting arrangement
- Lighting control systems
- Maintenance and ongoing running costs

2.2 External Building Surrounds

Lighting to external building surrounds will be provided to integrate with the architectural design and the overall aesthetics of the building. Vandal and weather resistant LED light fittings will be provided in external areas as appropriate.

Lighting to external building surrounds will be provided to achieve lighting subcategories:

- PR2 for access roads (refer to Section 2.3); and
- PP2 for pedestrian pathways (refer to Section 2.4).

Lighting to external building surrounds will also be provided for security purposes. Lighting levels associated with lighting category PP2 will be enough to enable operation of surveillance cameras (typically 0.3 - 0.6 lux).

Lighting category PP2 is determined based on the following selection criteria:

- Pedestrian/cycle activity – High
- Fear of crime – Medium

The light technical parameters associated with Category PP2 lighting are as follows:

- Average horizontal Illuminance – 7 lux
- Point horizontal illuminance – 1 lux



- Illuminance (horizontal) uniformity – 5
- Point vertical Illuminance – 0.3 lux

2.3 Access Roads

Access road lighting will be designed to comply with both AS/NZS 1158.3.1 – Pedestrian area lighting (category P), and AS/NZ 4282 – Control of the obtrusive effects of outdoor lighting.

Lighting to access roads will be designed to lighting subcategory PP2.

Lighting category PR2 is determined based on the following selection criteria:

- Pedestrian/cycle activity – High
- Fear of crime – Medium
- Need to enhance amenity - High

The light technical parameters associated with Category PR2 lighting are as follows:

- Average horizontal Illuminance – 3.5 lux
- Point horizontal illuminance – 0.7 lux
- Illuminance (horizontal) uniformity – 8

Where required, it is proposed to utilise pole mounted LED light fittings with Type 2M/3M optics.

Light fittings will have zero-degree horizontal cut off to minimise any upward light spill.

Where necessary, light fittings will be provided with shields to prevent light spill into adjoining properties and sensitive receivers as identified in Section 3 **Error! Reference source not found..**

Surface-mounted LED light fittings will be fixed to the building where appropriate to the architectural intent.

2.4 Pedestrian Pathways

Pedestrian pathway lighting will be designed to comply with both AS/NZS 1158.3.1 – Pedestrian area lighting (category P), and AS/NZ 4282 – Control of the obtrusive effects of outdoor lighting.

Lighting to new pedestrian pathways will be designed to lighting subcategory PP2.

Lighting category PP2 is determined based on the following selection criteria:

- Pedestrian/cycle activity – High
- Fear of crime – Medium

The light technical parameters associated with Category PP2 lighting are as follows:

- Average horizontal Illuminance – 7 lux
- Point horizontal illuminance – 1 lux
- Illuminance (horizontal) uniformity – 5
- Point vertical Illuminance – 0.3 lux

It is proposed to utilise pole mounted LED light fittings with Type 2M/3M/Type 4M/Type 5M (Symmetrical) optics.

Light fittings will have zero-degree horizontal cut off to minimise any upward light spill.



Where necessary, light fittings will be provided with shields to prevent light spill into adjoining properties and sensitive receivers as identified in Section 3**Error! Reference source not found..**

Surface-mounted LED light fittings will be fixed to the building where appropriate to the architectural intent.

3. Light Spill Minimisation

All new external lighting will comply with AS 4282 – Control of the obtrusive effects of outdoor lighting.

External lighting will be designed with due consideration of lighting spillage to adjacent properties and sensitive receivers.

Locations sensitive to light spill have been identified as follows:

- Westmead Adult's Hospital Central Acute Services Building
- Existing Children's Hospital at Westmead building including, but not limited to:
 - Staff Areas; and
 - Division of Surgery (Level 3)
- Kids Research Institute

The following approaches will be incorporated into the external lighting design to minimise obtrusive lighting:

- Luminaire mounting heights selected to minimise spillage and cater for better lighting control
- Where possible, light fittings adequately setback from the property boundary to reduce light spill
- Light fittings with narrow beam or sharp cut of angles
- Light fittings with low vertical aiming angles



Design with
community in mind

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