



HEALTH INFRASTRUCTURE

Moree Hospital Redevelopment – Statement of Sustainability Initiatives

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Table of Contents

1.	Executive Summary.....	4
2.	Introduction	4
2.1	Context.....	4
2.2	Site and Location	5
3.	Sustainability Approach	56
3.1	Design Guidance Note 058 – Environmentally Sustainable Development	56
3.2	Sustainability Objectives	Error! Bookmark not defined. 6
4.	Sustainability Initiatives.....	6
4.1	Energy Efficiency.....	6
4.1.1	High Performing Building Fabric.....	Error! Bookmark not defined. 7
4.1.2	Renewable Energy.....	67
4.1.3	Lighting.....	67
4.2	Water Efficiency.....	67
4.3	Indoor Environmental Quality	67
5.	NCC 2022 Section J.....	78
6.	Climate Change Resilience Statement.....	78
6.1	Projected Climate Risks.....	79
6.2	Project Design Response.....	89
6.3	Climate Adaptation Plan.....	Error! Bookmark not defined. 9
7.	Summary.....	Error! Bookmark not defined. 9

1. Summary

This report presents an overview of the proposed sustainability targets for the Moree Hospital Redevelopment project, as well as the sustainability initiatives that will deliver them.

The information contained within this report has been prepared with consideration of:

- HI Sustainability Commitment and Strategy
- Design Guidance Note No. 058 Environmentally Sustainable Development Revision B
- NCC 2022 Section J energy efficiency compliance by a minimum of 10%.

The project will implement several sustainable initiatives aimed at mitigating the environmental impacts in the following areas:

- Climate Resilience – including a site-specific climate change risk assessment and adaptation plan.
- Energy & Carbon – energy efficiency across the buildings and use of on-site renewable energy.
- Water – water efficient fixtures and fittings, collection and reuse of water and improved stormwater quality.
- Materials – consideration of the whole of life impact of materials and selection to minimise harm to the environment and efficient construction methods.
- Health & Wellbeing - maximising daylight and improving indoor air quality through the use of low emissions materials.

2. Introduction

2.1 Context

The objective of the Moree Hospital Redevelopment (MHR) Project is to integrate new and health-focused patient care facilities to support the adoption of improved models of care in alignment with the recommendations of the Clinical Services Plan (CSP). The project's primary focus is to replace existing assets by consolidating services into a new Acute Services Building (ASB). The two-storey ASB will be situated on the southern section of the existing site, providing a new main access to the campus.

The project scope includes the master planning and delivery of the following:

- Operating theatre
- Birthing suites
- Emergency care services
- Clinical support services
- Overnight inpatient beds
- Imaging services
- Pathology shell space

The redevelopment will also incorporate the following associated works:

- New hospital main entry and Front of House
- Back of House services
- Modifications to existing carparking
- Landscaping
- Decommissioning & demolition of redundant existing facilities
- A new substation
- A new loading dock & services yard area

2.2 Site and Location

The site is located at 25 Alice Street, Moree, NSW 2400 within the Moree Plains Local Government Area. The redevelopment works are focused on the eastern portion of the existing Moree Hospital site.



Figure 1: Site and Local Context (Source: Sixmaps)

3. Sustainability Approach

3.1 Design Guidance Note 058 – Environmentally Sustainable Development

Health Infrastructure's Design Guidance Note 058 Environmentally Sustainable Development (DGN058) is the organisation's main sustainability guidance. It ensures the improved environmental and sustainability performance of the project, inclusive of minimum sustainability requirements that must be met based on the project's scope and cost.

3.2 Sustainability Objectives

In compliance with DGN058, the Moree Hospital Redevelopment Project is targeting the following sustainability objectives:

- Aligning the overall vision of the project with the ESD principles outlined in the Environmental Planning and Assessment Regulation.
- Exceeding the energy efficiency requirements of Section J of the NCC 2022 by a minimum of 10%.
- Inclusion of initiatives to minimise energy and water demand and minimise overall environmental impacts.

4. Sustainability Initiatives

4.1 Energy Efficiency

Energy usage on the site will be significantly reduced through superior design and performance utilising the steps in the reduction hierarchy. To achieve maximum energy efficiency, the initial step is to lower demand, followed by designing systems for optimal efficiency. The potential for on-site renewable energy will be fully explored.

4.1.1 Window reveals and overhangs

To manage heat gain during the summer, , recessed window reveals, overhangs, and screens are employed..

The glazing will utilise a low-emissivity (low-e) system, designed to decrease heating and cooling loads. This system adheres to the NCC 2022 Section J standards for building fabric, providing enhanced comfort for occupants, lowering energy usage, and improving indoor air quality.

4.1.2 Renewable Energy

The project includes the installation of photovoltaic systems on the roof, generating on-site renewable energy to reduce energy expenses and dependence on the electricity grid. The system's size will be finalised during the detailed design phase.

4.1.3 Lighting

In addition to the high-efficiency LED lighting systems that will be installed, lighting control measures, including occupancy sensors and daylight sensors will help to reduce overall lighting energy demand.

4.2 Water Efficiency

The use and discharge of water has been carefully considered to improve the development's impact on the water cycle. Tapware and sanitary fixtures, as well as water reuse opportunities, have been proposed, including:

- **Water efficient fixtures** will be targeted:
 - 5 Star WELS rated taps.
 - 4 Star WELS dual flush toilets.
 - Showers <6L/min.
 - Urinals will be maximum 0.8L/flush (6 Star WELS).
- **Landscaping** will be designed to be low water use, with the following to be implemented:
 - Incorporation of native and low maintenance vegetation.
 - Sub soil drip irrigation systems to minimise evaporation.
 - Irrigation supply from non-potable water sources including harvested rainwater.
- **Water Sensitive Urban Design**
 - Several strategies have been put in place to ensure water is intercepted and filtered before it reaches waterways, reducing overall stormwater discharge. The use of onsite water detention and filtration systems will be used to minimise the impacts on council stormwater systems.

4.3 Indoor Environmental Quality

Improved indoor environment quality is an important component of sustainable building design. The architectural design considers the following elements to improve indoor environment quality:

- **Views:** considered to optimise visual access to the outdoor environment while balancing thermal comfort requirements.
- **Daylight glare:** minimised by screens and recessed windows on each façade.

- **Artificial lighting:** designed to minimise glare reduction while providing adequate illuminance levels, to be delivered through careful luminaire selection and placement.
- **Acoustic comfort:** optimised to ensure internal noise levels, reverberation levels and separation levels are achieved in line with best practice standards.
- **Materials and finishes:** selected to be low-VOC and low formaldehyde to minimise off-gassing and provide a better quality environment for staff and patients.

5. NCC 2022 Section J

Section J of the National Construction Code 2022 relates to the energy efficiency of buildings. It provides a minimum performance target for standard buildings and specifies minimum deemed-to-satisfy (DTS) requirements for building fabric and services.

Using Part J4 compliance methodology, which allows for intricacies of the project design, the proposed development has been deemed to be located within the NCC Climate Zone 4, which is considered the ‘hot dry summer, cool winter’ climate. The table below outlines the thermal performance requirements for the development.

ELEMENT	MINIMUM PERFORMANCE
Roof/ceiling	R3.7 m ² .K/W (downward heat flow) with solar absorptance <0.45
Non-Ward External walls	R1.0 m ² .K/W (including the impacts of thermal bridging)
Ward External Walls	R2.8 m ² .K/W (including the impacts of thermal bridging)
Internal walls	R1.0 m ² .K/W (including the impacts of thermal bridging)
Suspended floor slabs	R2.0 m ² .K/W (upwards and downwards heat flow)
Slab on ground	None
Glazing	U Value 3.6 SHGC 0.4

6. Climate Change Resilience Statement

As part of the initial design, an assessment of project risks associated with the predicted impacts of climate change has been undertaken for the proposed development to ensure the project design allows for suitable provisions for the predicted impact of climate change scenarios. The NSW Government's NSW and ACT Regional Climate Modelling (NARClIM) projections were used, placing Moree Hospital within the New England and North West region. The data from this region has been analysed and will inform the development of the project as follows.

6.1 Projected Climate Risks

Based on the NARClIM data, the initial site-specific risks are as follows:

- Extreme Rainfall – Increase in Rainfall:
 - Increased erosion and siltation due to storms/flooding.
 - Extreme storm events with high winds causes damage to buildings and injury to people.

- Increase in Average Temperature:
 - Damage or compromised reliability and durability of building components and materials.
 - Decreased outdoor comfort for staff, patients, and visitors, and possible health and safety concerns when they engage in activities outdoors.
 - Increased reliance on air conditioning, thus higher energy consumption and maintenance requirements
- Higher Frequency of Extreme Temperatures:
 - Increase in electricity demand, resulting in possible brown or black outs.
 - Decrease in indoor thermal comfort.
- Precipitation and drought – increase in the number of dry days:
 - Decrease in water supply and potential water restrictions imposed by the local council.
 - Lower water availability and increased demand for landscaping.
- Bushfires:
 - Severe fire-weather climate is projected to increase in the near- and far-future, especially during spring and summer.

6.2 Potential Design Adaptation Response

Potential adaptation strategies to the climate risks outlined above may be:

1. Flooding impact assessment has considered impacts of climate change in modelling.
2. Mechanical systems designed to comply with the Bushfire Assessment requirements.
3. Onsite rainwater storage and energy generation.
4. Material selection focus on durability to climate stress such as extreme heat and wind loads.
5. Landscape design to suit climactic conditions and tolerate dry periods.