SEAR's ESD Report

Pathways Cremorne

Morrison Design Partnership

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Revision History

Revision	Reference	Description	Author	Checked By	Date
1.0	11401_1	SEAR's ESD Report	Payal Aggarwal	Luke Williams	19th June 2023
2.0	11401_1	SEAR's ESD Report	Payal Aggarwal	Luke Williams	5th July 2024

1 Introduction

Aspire Sustainability Consulting has been engaged to prepare an Ecologically Sustainable Design (ESD) report to accompany State Significant Development Application (SSD-49472213) regarding the proposed Pathways Cremorne site. This report outlines the sustainable design initiatives being explored for the development, demonstrating a commitment to exceed controls & objectives outlined in the Secretary's Environmental Assessment Requirements (SEAR's).

1.1. ESD Controls & Objectives

The following table references sections within the report where compliance is demonstrated with applicable SEAR's requirements.

Table 1: ESD Controls & Objectives

Planning Secretary's Environmental Assessment Requirements – Seniors	Design Response
Identify how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design and ongoing operation of the development.	Numerous ESD principles are currently considered that reduce the environmental impact of the development. Please refer to Sections 3-12 for further information.
Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards	The development will exceed minimum NCC 2022 Volume 1 Section J (Energy Efficiency) & BASIX requirements. Please refer to Sections 3-12 that outline additional ESD principles currently considered in design.
Demonstrate how the development minimises greenhouse gas emissions (reflecting the Government's goal of net zero emissions by 2050) and consumption of energy, water (including water sensitive urban design) and material resources.	Please refer to Sections 3-12 that outline additional ESD principles currently considered in design.

1.2. Aim of Report

The following sections outline design initiatives being considered that reduce the environmental impact of the design, construction, and operation of the development, highlighting alignment with applicable targets and planning controls.

2 Project Description

The development is located at the 50-88 Parraween Street and 59-67 Gerard Street, Cremorne, NSW 2090 and will comprise 3 Independent Living Unit (ILU) Blocks and one Residential Aged Care (RAC) Block situated above communal areas and associated back of house spaces.

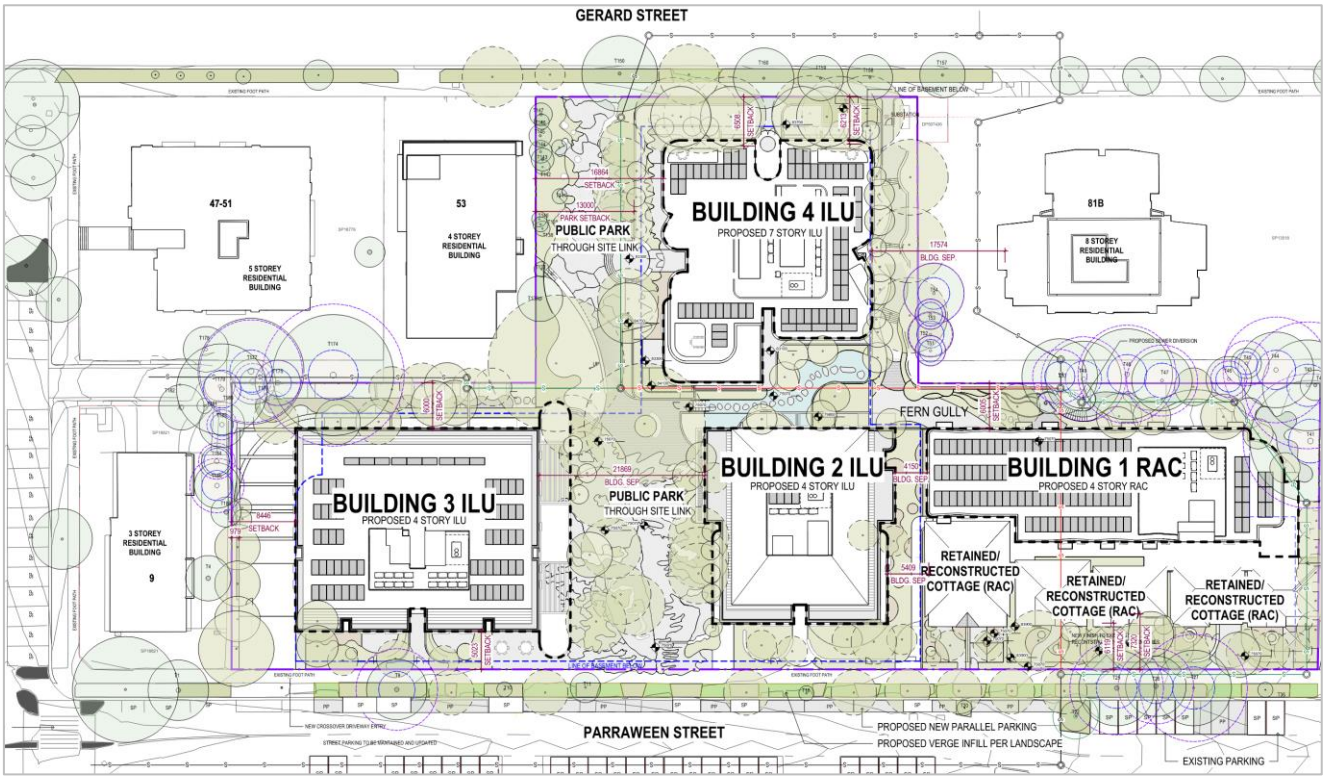

Figure 1: Site Layout

2.1. Information Sources

- NCC Section J 2022 Volume 1;
- Planning Secretary's Environmental Assessment Requirements;
- Architectural DA Submission issued 5th July 2024; &
- North Sydney DCP 2013.

3 Ecologically Sustainable Design

The following Sections contain sustainable design initiatives currently being explored by the design team in line with the ecologically sustainable design categories outlined below:

- Passive Design & Energy Efficiency
- Water
- Emissions
- Transport
- Construction
- Climate Change Adaptation
- Materials
- Land Use & Ecology
- Waste

During design development, feedback from the design team will drive discussions with the aim of finalising the approach regarding sustainable design for the Pathways Cremorne Development.

4 Passive Design & Energy Efficiency

The Pathways Cremorne Development will consider the following initiatives throughout design development:

- A light external colour scheme that reduces the sites contribution to the urban heat island effect, also lowering internal temperatures by minimising the heat being transferred through the building fabric;
- Shading incorporated throughout the site, reducing peak HVAC loads and allowing winter daylight penetration (Figure 2);
- Suitably performing glazing for each facade, protecting from hot ambient air during summer whilst allowing heat to be kept inside during winter;
- Vegetation incorporated throughout site to provide shade and places of respite; &
- Thermal mass utilised where possible, helping to smooth out daily temperature peaks and troughs.

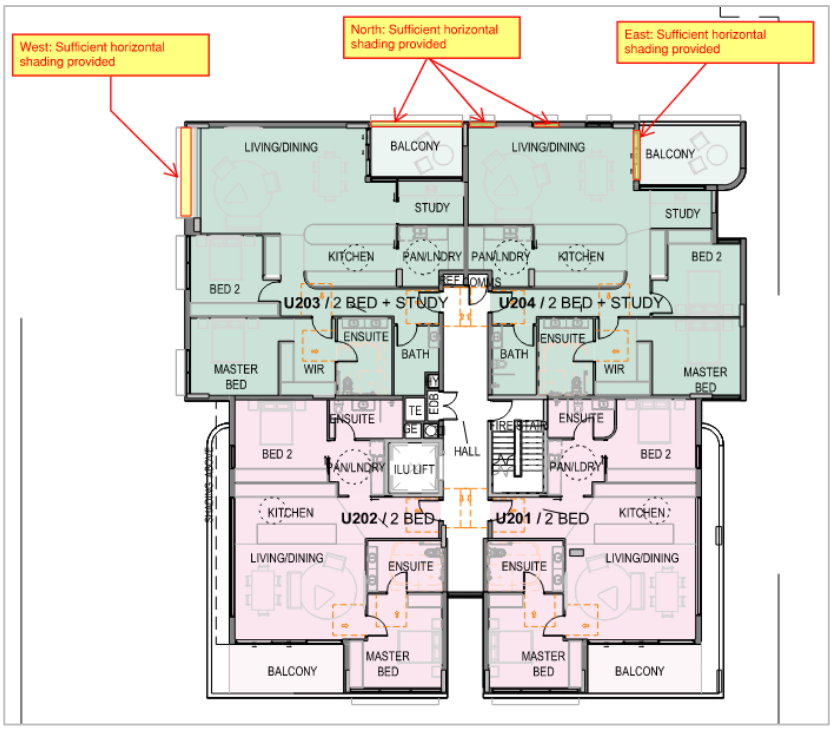

Figure 2: Shading provided.

Energy efficiency initiatives being explored in design are outlined below:

- Metering in line with minimum performance standards to track and monitor energy consumption;
- Efficient, air-cooled HVAC systems that eliminate water consumption associated with heat rejection;
- Energy efficient systems for Domestic Hot Water heating;
- Limiting use of gas throughout site with the exception of the commercial kitchen;
- Non-Class 2 spaces will exceed minimum NCC 2022 Volume 1, Energy Efficiency provisions (Section J);
- Class 2 spaces will exceed minimum BASIX & NatHERS requirements;
- Solar PV system will provide a portion of the sites power, whilst reducing peak power demands; &
- Energy efficient LED lighting throughout with appropriate motion & daylight controls.

5 Transport

The development is situated in a central location within 50-88 Parraween Street and 59-67 Gerard Street, Cremorne, NSW 2090, well connected to a variety of sustainable modes of transport such as walkways and bus stops. Additional items that will be investigated during detailed design include:

- Showers & locker facilities for staff; &
- Bicycle parking facilities.

6 Materials

The environmental footprint of the development can be reduced through the procurement of sustainable products. This can include products produced with lower than typical energy consumption during manufacture, made with reused content, or not transported large distances to its point of use.

During the detailed design phase, the sustainable materials strategy for the development will explore the following items:

- Environmental Performance Declarations (EPD's) for plasterboard and flooring;
- Recycled content in products where appropriate;
- FSC timber; &
- Paints, adhesives & sealants specified to contain low VOC & formaldehyde, improving internal air quality.

Figure 3: Examples of third-party environmental product declarations that can be explored during design development.

7 Water

The development will reduce water consumption by incorporating the following water saving measures into design:

- Installing fixtures and fittings in line with best practice requirements outlined in Table 2;
- Exceeding BASIX water targets for residential portions of the development;
- Ensuring a large portion of landscape comprises native or low-water use plant species.
- Inclusion of a rainwater reuse tank to be used for landscape irrigation; &
- Air cooled HVAC systems, reducing water associated with heat rejection.

Table 2: Recommended Water Efficiency of Fixtures & Appliances

Fixture/Equipment Type	WELS Rating
Taps	5 stars
Urinals	5 stars
Toilet	4 stars
Showers	3 stars (> 4.5 but <= 6.0)
Dishwashers	4 Stars

Figure 4: WELS Water Rating Label

8 Construction

Sustainable construction practices that will be considered for implementation throughout construction include:

- Contractor construction waste management plan to investigate >80% of construction waste by weight being diverted from landfill;
- Responsible management systems such as an Environmental Management Plan & implementing an Environmental Management System in line with ISO 14001; &
- Reuse of existing building elements where possible.

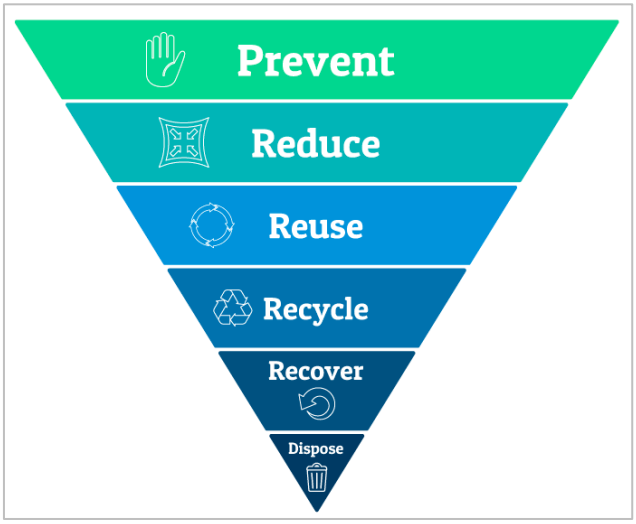

Figure 5: Sustainable Waste Management Hierarchy

9 Land Use & Ecology

The development aims to reduce potential negative impacts resulting from urban development and enhance local ecology by implementing the following design features:

- Plant beds & trees at multiple locations which allow for deep planting and significant canopy cover, providing shade, improving air quality as well as enhancing local levels of biodiversity;
- Utilising stormwater and WSUD features in line with North Sydney Council DCP, decreasing the strain on central water infrastructure systems, and providing safe havens for local biodiversity; &
- Light colour schemes to external surfaces and areas of deep soil vegetation that reduce the urban heat island effect.

10 Emissions & Waste

ESD initiatives associated with emissions and waste currently implemented in design include:

- Stormwater & WSUD features in line with planning controls, reducing the sites impact from stormwater runoff and pollution;
- Adopting air cooled HVAC systems, eliminating the risk associated with legionella disease when cooling towers are installed on site;
- Provision of facilities to enable separation of multiple waste streams including glass, plastic, carboard and organic waste; &
- Minimisation of construction waste to landfill.

The potential to use air conditioning systems with refrigerants that have a low Global Warming Potential will also be explored, subject to no detrimental impacts on air conditioning system efficiency.

11 Climate Change Adaptation

To ensure the long-term durability of the site and its ability to adapt to a changing climate, the following measures will be considered:

- Rainwater tank to reduce the potable water consumption of the development and reduce the strain on central water infrastructure;
- Light colour schemes that keep the external surfaces of the building cool, reducing impacts of the urban heat island effect & keeping naturally ventilated spaces cool;
- Increasing capacity of mechanical and electrical distribution boards to accommodate an increase in building electrical loads associated with a warming climate;
- Ensuring the development is constructed in accordance with recognised standards regarding wind tolerance and impacts from hail; &
- Offering a place of respite during extreme weather events.

12 Conclusion

This report demonstrates the development is on track to exceed sustainability objectives contained within the Secretary's Environmental Assessment Requirements (SEAR's).

Throughout design development, detailed investigations will be carried out to further refine the ESD strategy for the development, providing an exceptional example of sustainable design to the Cremorne community and beyond.