Our Ref: 1&2 Murray Rose Ave, Sydney Olympic Park - Green Star & ESD
Contact: Behrooz Shojaei

Cardno (NSW/ACT) Pty Ltd
ABN 95 001 145 035

Level 9 - The Forum
203 Pacific Highway
St Leonards 2065
Australia

Phone +61 2 9496 7700
Fax +61 2 9496 7748

www.cardno.com

9th August 2018

URBIS

LEVEL 23, DARLING PARK TOWER 2,

201 SUSSEX STREET

SYDNEY, NSW 2000

Attention: Katie Weaver

Dear Katie,

Re: 1&2 Murray Rose Ave, Sydney Olympic Park NSW - Green Star & ESD

Cardno has been engaged by Austino to undertake the required Ecologically Sustainable Design (ESD) benchmarking and assessments (targeting 6 Star Green Star) for the proposed residential development at 1-2 Murray Rose Ave Sydney Olympic Park NSW.

The principles of ecologically sustainable design will be an integral consideration throughout the development. The sustainability targets for the development will be achieved in an integrated and staged approach through minimising the need for energy and consumption (via passive measures) and then consumption optimisation (energy efficiency) and use of renewable resources where required.

Aiming at leading practice in energy and environmental targets, the architect and building services design team will maximise energy efficiency in an integrated and staged approach:

Load Reduction **(minimising the need for energy consumption)**	Passive Design
	Building fabric improvements
	Maximum use of natural lighting
	Maximum use of Natural ventilation
Optimising energy consumption	High efficiency Heating, Ventilation and Air Conditioning
	High efficiency lighting
	High efficiency hot water systems
	High efficiency appliances
Use of renewable resources	Application of Solar Energy and Solar thermal systems where practical

The development will be designed to meet and exceed the following sustainability requirements:

- BASIX,
- NCC Section J,
- 6 Star Green Star - Design & As Built Tool – Green Building Council of Australian

The targeted ESD initiatives nominated in the Green Star scorecard attached and the methodology above demonstrate how the development intends to achieve a 6-Star Green Star rating.

The following are some of the design initiatives which will improve the environmental performance of the development and deliver long term energy efficiency during the life of the building.

- A high-performance façade will limit the heat entering the buildings, reducing air conditioning system sizes and the energy use over the year;
- Optimising the size of the mechanical plant to ensure the plant is working at its peak efficiency and minimise the capital cost of the plant;
- Having high efficiency lighting and air conditioning equipment will reduce the energy consumption of the buildings;
- A mixed mode approach allowing the buildings to be naturally ventilated when outdoor conditions are suitable allowing significant energy reduction by not requiring the air conditioning system to operate at all times;
- Variable Speed Drives (VSD) controls the speed of pumps, fans and other mechanical plant to ensure that they are only using as much power as it is needed;
- Commissioning of all services equipment to ensure their correct operation;
- Emission reductions and material optimisation.

The facade and floor plans will be designed with the vision to give occupants the very best in terms of passive heating and passive cooling. This, when combined with other energy efficiency strategies will lead to low energy demands for the apartments and base building and therefore lower greenhouse gas emissions during the life of this development. This will be achieved through the following measures:

1. High efficiency glazing with low U-value and low SHGC to ensure optimal performance on the northern and western facades.
2. Effective sun shading and projections are provided to ensure minimal solar penetration during summer months and maximum performance during the winter months.
3. Adequate level of thermal insulation.

The design team recognise the importance of sustainable developments in terms of environmental preservation, occupants' health, safety and wellbeing, as well as in terms of greenhouse gases emissions reduction. The above Passive Design measures will minimise heat loads and subsequently the impact on the building services design.

Pease do not hesitate to contact the undersigned if you require any further clarification.

Regards,

Behrooz Shojaei

Senior ESD Engineer

MEng (UTS), MEngSc (UNSW)

NABERS AA, CEC AD, GSAP

Mobile: 0430 108 801

Email: behrooz.shojaei@cardno.com.au