

Appendix 9 – Ecologically Sustainable Design Report



ECOLOGICALLY SUSTAINABLE DESIGN (ESD) REPORT

263-281 Pennant Hills Road, Carlingford NSW 2118

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1 Introduction – Carlingford Apartments Planning Proposal

Efficient Living has been engaged by Karimbla Construction Services to prepare an ESD report to accompany a Planning Proposal Application for a mixed use redevelopment at 263-281 Pennant Hills Road, Carlingford, and measure this proposal against Ecologically Sustainable Development (ESD) principles.

The Planning Proposal seeks to re-purpose a low-density residential site into a future proofed and sustainable community.

The site is within The City of Parramatta Council and is zoned R4 (High Density Residential) and RE1 (Public Recreation).

The Planning Proposal Application is required to demonstrate objectives and controls outlined within The Hills Development Control Plan (2012) – Part D Section 12 Carlingford Precinct.

A review of Council's existing ESD policies has been undertaken against the Planning Proposal and is found to be appropriate.

Planning Proposal Description

This application for a Planning Proposal seeks to amend the provisions of Parramatta Local Environmental Plan 2023 (PLEP) for land at Nos. 263-271 & 277-281 Pennant Hills Road, Carlingford. The Planning Proposal seeks to amend the zoning, height of buildings development standard and Floor Space Ratio (FSR) development standard as they apply to the subject site, and will also seek to amend Clause 24 of Schedule 1 "Additional Permitted Use". Specifically, the following changes are proposed:

- Zoning: Rearrange, consolidate and improve the location and relationship of the RE1 Public Recreation and R4 High Density Residential zones as they apply to the site;
- Building Height: Establish a maximum building height of 48m along Shirley Street and within the north-eastern corner of the site, and 105m building height along Pennant Hills Road;
- Floor Space Ratio: Increase the maximum FSR of the site to 3.6:1, where zoned R4 High Density; and
- Schedule 1 Additional Permitted Uses: Amend Clause 24 of Schedule 1 to allow for a maximum gross floor area of parts of the building used for business premises, food and drink premises, recreation facilities (indoor) and shops, to be 2,600m².

Site Perspective View of Architectural Model



Image source: Fender Katsalidis

2 Aim of the Report

The purpose of this report is to ensure the Planning Proposal is consistent with Council's ESD policies and planning controls.

2.1 LEP

The design is in line with the controls of the LEP, other than Schedule 1 Additional Permitted Uses, which the Planning Proposal seeks a slight variation for.

2.2 DCP

The following table outlines the ESD controls within the Carlingford DCP's, also highlighting sections within the report demonstrating compliance with the environmental controls outlined below. The purpose of controls within the DCP is to ensure all objectives are satisfied, therefore only a response to the controls has been provided.

Section 4.33.1 Ecologically Sustainable Development Objectives	Design Response
i) To apply precautionary principles where development is likely to cause short or long-term irreversible or serious threats to the environment;	No threats to the environment identified
ii) To address and allow for broad community involvement in respect to local issues of concern throughout the development process;	The Planning Proposal will be placed on exhibition by Council and all submissions will be considered.
iii) To ensure that during the design, construction and operation of the development, that water leaving the site is of a quality and quantity comparable to that which is received;	Operation: Discharge from the site will be conveyed to the storm filter chamber/ onsite detention tank (including other measures) before discharging into Council stormwater kerb inlet pit infrastructure. Water quality target objectives will be achieved through the provision of SPEL stormsacks, rainwater tanks and a SPELfilter chamber system.
iv) To ensure that biodiversity, and the integrity of ecological processes, are not compromised by the development; and	See comments in Section 3 - Landscape and Section 4 – Water, of this report. A Landscape report will be submitted with the Planning Proposal and all future DA's.
v) To promote the following during the design, construction and operation of any development: - The use of energy efficient materials and designs; - Utilisation of renewable energy and materials; and - Energy efficient technology	Passive solar design and Energy Efficiency: All buildings will be NatHERS, BASIX and Section J compliant. There is an extensive solar and EV strategy.
vi) To follow the principles of the 'Waste Hierarchy' (reduce, reuse, recycle) in the use of materials and the design of waste recovery and disposal systems throughout the development process;	See comments in Section 6 Waste and Recycling, of this report. A Waste Management Report will be submitted with all future DA's.
vii) To protect neighbourhood amenity and safety in the design, construction and operation of the development;	ESD principles and initiatives as outlined in this report ensure amenity for future and existing residents through a well thought out approach to ecologically sustainable development.
viii) To encourage the long term economic viability and health of the community in the development process; and	ESD principles and initiatives such as EV chargers, roof top gardens, water efficient buildings and landscaping, overall energy efficient buildings and the promotion of

	active and public transport ensures the long-term economic viability and promotion of healthy choices for the community.
ix) To encourage the use of public transport, use of bicycles and pedestrian trips in the development and design process.	See comments in Section 7 Traffic, of this report.
Section 4.33.1 Ecologically Sustainable Development Development Controls	Design Response
a) As part of the Statement of Environmental Effects required to be submitted with all development applications a summary of the action taken in order to achieve these objectives must be included.	Refer to the Statement of Environmental Effects. A Statement of Environmental Effects will be submitted with all future DA's.
b) To improve the air quality of the locality, the installation of wood heaters is not permitted.	Accepted
Section 4.34 BASIX	Design Response
All development applications will be required to demonstrate that they meet the BASIX targets.	A BASIX certificate will be completed as part of the building development application.

2.3 NCC and SEPP Requirements

Regulatory Requirements
NatHERS and BASIX controls All residential dwellings and Class 2 common areas within the proposed complex will comply with NatHERS and / or BASIX regulations.
Section J and / or NABERS All commercial floor area including retail, childcare centre and community centre will comply with Section J, Energy Efficiency of the National Construction Code, or an alternative pathway deemed acceptable, ie. NABERS energy.

3 Landscape

As Australia's need for urban density increases, dwellings become smaller, facilities are shared, public and active transport trends shift, and this ultimately drives down the ecological footprint per capita; a big win for the environment.

Our cities of the future need to allow humans to still feel attached to natural environments. Increased building heights need to be balanced with large open spaces where community can come together and recharge in nature.

3.1 Landscape Concept

The new urban precinct in Carlingford will be a vibrant and inviting space that connects people to nature. The landscape design provides expansive garden areas across staggered levels including a large central park and rooftop communal open spaces.

The central park will be the heart of the precinct, providing a place for recreation, relaxation, and community events. It will be designed to be inclusive and accessible to all, with a variety of features to suit people of all ages and abilities. The park will be surrounded by a mix of residential, commercial, and retail development. The overall goal is to create a sustainable and livable community that is connected to nature.

The central park and community link areas will be developed by Meriton and then dedicated to Council as public land. These areas will be able to achieve the goals and actions set out in the City of Parramatta Environmental Sustainability Strategy (2017).

Proposed landscaping and open space will provide a significant reduction in the Urban Heat Island Effect.

Landscape Concept Plan



Image source: Urbis

3.2 Communal Rooftops

In addition to all on grade landscaping; the communal rooftop spaces and will be appropriately designed and landscaped to create a vibrant and inviting space that connects people to nature and each other. The spaces will be a place where people can relax, learn, and connect with their community and nature, whilst learning about sustainability.

Communal Open Space – Rooftops Precedent Imagery

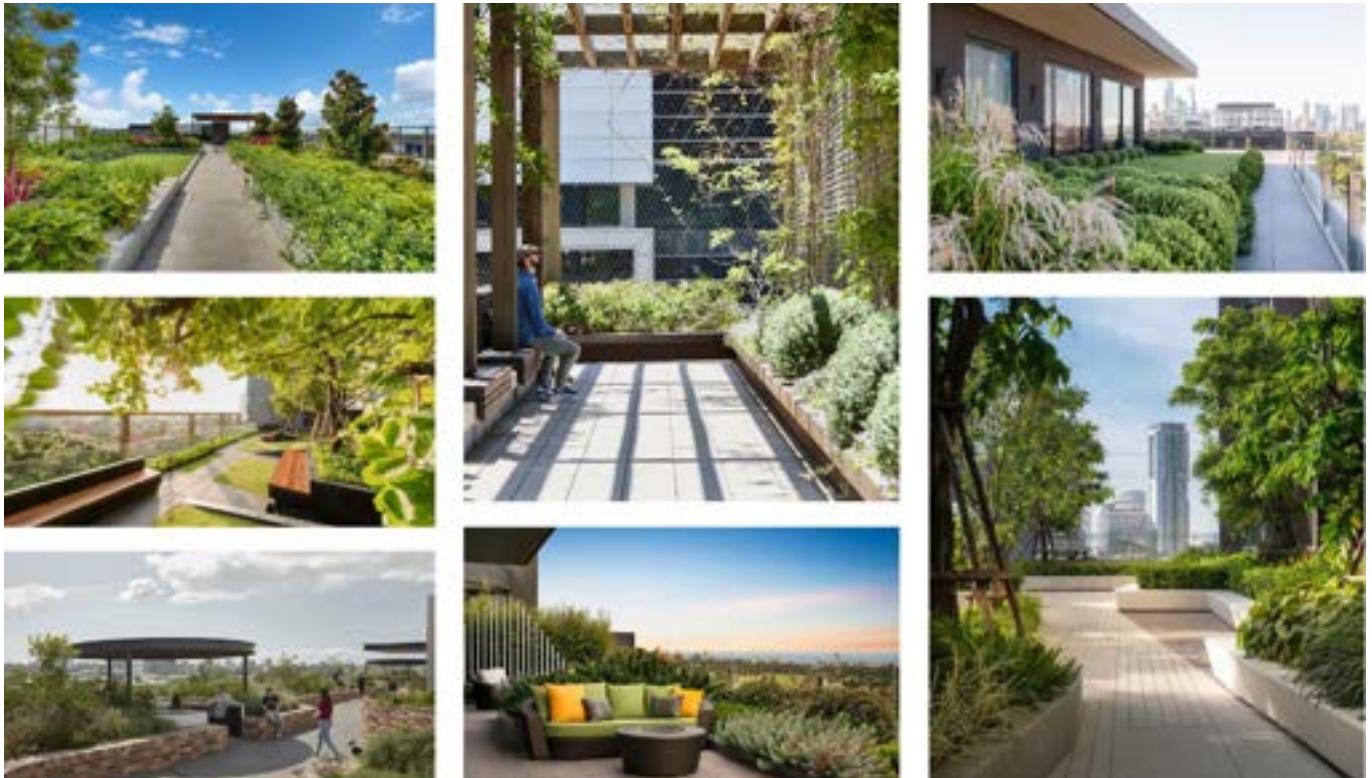


Image source: Urbis

3.3 Tree Canopy Cover

Street trees are proposed along Shirley Street and Pennant Hills Road in accordance with the 'Carlingford Urban Village Street Tree Strategy'.

The tree canopy aims to reduce the impacts of the urban heat island effect whilst providing other benefits such as improving air quality, providing habitat for wildlife. Landscape settings improve air-quality, stabilise air temperatures, provide shade, increase mental health, encourage physical activity, improve storm water quality and reduce runoff.

3.4 Community Vegetable Gardens

In the REI zoned land, in consultation with Council, Meriton will pursue opportunities to incorporate community vegetable gardens.



3.5 Urban Heat Island Effect

The extensive amount of on-grade, podium and landscaped roof tops; as well as shading structures, will significantly reduce the impacts of Urban Heat Island Effect.

Sydney's construction trend has included urban sprawl with a lot of hard surfaces and dark external colours. This new era of development will start to reverse these impacts by absorbing the heat energy back into the natural environment.

4 Water

Urban sprawl has placed excessive stress on Sydney's storm water systems. Increased populations require a smarter approach to the use of mains water and discharge of water into sewer systems.

4.1 Landscape & Irrigation

The proposed planting palette incorporates a mix of robust native species supported with selective exotics to enhance visual amenity while encouraging biodiversity and provide opportunities for local ecological habitat. Additionally in response to the site's sloping topography there is the ability for raingarden and bioswale style planting to be included to improve this ecological benefit.

Irrigation systems will comprise of subsurface drip systems and automatic timers with rainwater/soil moisture sensor controls.

Indicative Plant Palette



Image source: Urbis

4.2 Rainwater and Stormwater Management

The roof tops and landscape podiums area ideal for the capture and reuse of rainwater. These areas will feed into rainwater tanks and be used to water the common area gardens.

Grass, plants and trees absorb the rain and improve soil quality, allowing the soil to hold more water. The landscape plan has surface finishes and levels designed to direct stormwater overflow into onsite detention tanks.

4.3 Fixtures and Fittings

Water efficiency with-in the complex not only reduces the need for mains water but also reduces the load on the sewer systems. The development will reduce mains water consumption by installing the following fixtures and fittings:

Fixture Type	WELS Rating
Taps	5 Star
Urinals	4 Star
Toilets	4 Star
Showers	6L to 7.5L per min
Dishwashers	4 Star

5 Energy

5.1 Passive Design

All residential dwellings and Class 2 common areas within the proposed complex will comply with NatHERS and / or BASIX regulations.

All commercial floor area including retail, childcare centre and community centre will comply with Section J, Energy Efficiency of the National Construction Code, or an alternative pathway deemed acceptable, ie. NABERS energy.

5.2 Embedded Energy Network

Meriton Energy will be partnering with Energy Locals to deliver an embedded energy network. Energy Locals operated embedded electrical networks are privately owned and operated metering networks that allow high-rise residential buildings to pool their electricity purchasing power and share in discounted electricity prices.

Embedded networks deliver benefits for the builder, the Owners Corporation and the end customer. They are also recognised by the Green Building Council as a favourable solution for multi-residential developments.

5.3 Lighting

The development will use LED lighting solutions throughout common areas with zoned switching and motion sensors.

5.4 Ventilation

The carparks ventilation systems will have fans with carbon monoxide monitors and variable speed drives.

5.5 Lifts

Meriton partner with leaders in the lift industry offering superior energy efficiency. By using energy regeneration technology, in which the lift car, counterweight and braking system generate energy that is converted into electrical current that can be used to drive other elevators. There is up to 30% energy savings with regeneration lift technology. In addition to this, the higher buildings will have destination control programmed lifts to further reduce energy consumption.

5.6 Solar Energy

The podiums and low roof areas will be utilised for communal open space and roof top gardens while the high roof areas will have space dedicated to the installation of Photovoltaic panels to approximately 20% area of the roof. The energy generated from these solar systems will be used to power the common areas.



6 Waste and Recycling

6.1 Demolition and Construction waste

Meriton will oversee the building demolition and waste resource recovery solutions on this site.

Meriton will encourage a 'Waste Free Australia' objective and support a circular economy by turning waste into recycled products.

Meriton can commit to a 90% target recycling all construction waste for the Carlingford Apartments. Meriton are currently achieving in excess of 94% for a current construction site at 180 George Street, Parramatta.

The circular economy action plan



Image source: European Union 2015

6.2 Durability and longevity

The average life span of a strata building far exceeds that of a single residential home. Merton always build with the same tried and tested construction methods and building inclusions because they are high quality, durable and low maintenance.

6.3 Reduced consumerism

The environmental footprint of people living in a unit over a suburban home is significantly reduced, due to; lower heating and cooling energy loads, greater reliance on public transport, smaller spaces to furnish and less room to store clothes and goods. This often leads to the occupant buying less and investing in better quality.

6.4 Waste sorting and storage facilities

The waste sorting rooms on each level will contain a general waste garbage shoot and recycling bins. The building manager will organise daily collection of recycling bins. Waste storage rooms for commercial and residential areas of the building will be kept separate.

7 Transport

7.1 Private vehicles

A key feature of this Planning Proposal is the reduction of private car parking spaces and a greater emphasis on active and public transport solutions. The Planning Proposal incorporates car parking at the following rates;

- | | |
|---|--|
| - 0.8 spaces per 1 bedroom unit | - 1 space per 18.5m ² of retail |
| - 1.0 spaces per 2 bedroom unit | - 1 space per 6 children for childcare attendees |
| - 1.3 spaces per 3 bedroom unit | - 1 space per staff for childcare staff |
| - 2 spaces per 5 dwellings for residential visitors | - community centre – as per existing supply |

7.2 Public transport

The site is located close to key transport links, with bus routes 550, 625, 546 & 513 providing trips to Parramatta, Epping, Pennant Hills, West Ryde and Carlingford.

The future Carlingford Light Rail Station is 400m away from the site and will connect users with key town centres, universities and employment areas.

Site and Surrounding Environment



Image source: Fender Katsalidis

Bus Service Network Map



Image source: TfNSW Bus Maps

7.3 Bicycles

The site is well connected to surrounding bike paths.

Bicycle parking will be provided to the residential, retail, childcare, and community centre.

Surrounding Cycling Network



Image source: Cycling Parramatta, City of Parramatta Council 2020

Connecting pathways are provided throughout the site and into the greater community to encourage active transport modes including: walking, bicycles, skateboards, etc.

7.4 Electric Vehicles

Meriton are committed to supporting Electric Vehicles (EV) NCC 2022 targets and will be partnering with an experienced third-party EV infrastructure expert to provide integrated custom EV charging networks within the sites electrical system.

Provision for 100% of the multi-unit residential car parking spaces will be 'EV-Ready'. An 'EV-Ready' car space requires the provision of an energy management system and backbone cable tray to enable future installation of smart EV chargers and cabling to the EV Distribution Board. The development shall provide cable trays, electrical cabinets, and conduits sufficient to accommodate the electric circuitry to each 'EV-Ready' car space. Over time, homeowners can sign up to the EV infrastructure provider's service agreement for EV charging.



7.5 The future of electric power transport

Electrical cars are just the beginning, with an increased focus on health and social distancing our countries bike paths have never been busier. Meriton will investigate opportunities to cater for the charging of alternative devices.

8 Conclusion

The Planning Proposal embraces many ideals targeted by cities of the future. It incorporates dwelling types ranging from 1 to 4 bedrooms apartments and inclusion of accessible/livable housing to support diverse communities. The site is ideal for the active transport objectives, the inclusion of a childcare centre, community library and retail; creating jobs and increased self-sufficiency. The roof top communal open spaces turn otherwise unusable spaces into intimate community hubs; while the extensive landscape spaces within the complex and park create a connection with nature for the wider community.