

# GREEN STAR ESD CONSULTANCY PROPSAL

**PROJECT NAME:** Park Ave Residence

**ADDRESS:** 3-9 Park Avenue Gordon  
NSW 2072

**CLIENT:** Park Ave Residence DM  
PTY LTD

## DOCUMENT CONTROL

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**CHECKED BY:** Jamie Bonnefinn

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# 1 - Introduction

This Ecologically Sustainable Development (ESD) report has been prepared by Tom Chen on behalf of Park Ave Residence DM Pty Ltd to accompany a State Significant Development Application (SSDA) for a residential flat building development, incorporating affordable housing.

The site is located at 3-9 Park Avenue, Gordon within the Ku-ring-gai local government area (LGA) and has an area of approximately 4,430sqm. The site is legally described as Lot 1 DP 213017, Lot 2 DP 834259, Lot 3 Section 4 DP 979547 and Lot 4 Section 4 DP 979547.

The site is within 200m of Gordon Railway Station and is well-serviced by public amenities such as a supermarket, cafes and destination retail shops. Community facilities such as swimming pools, a library, tennis courts, and active open space are easily accessible. The location of the site is illustrated below in fig 1.



Figure 1 – Aerial Photograph of the Site

The project (referred to as the proposed development in this report) comprises the construction of a residential flat building, including the following key components:

- Demolition of the existing buildings and removal of all trees on site.
- Excavation to a depth of RL 113.7m to accommodate a two level basement structure.
- Construction of a nine-storey residential flat building (31m in height), comprising:
  - 13,028sqm of gross floor area (GFA), equating to an FSR of 2.9:1.
  - 100 apartments, comprising the following mix:
    1. 69 market apartments.
    2. 26 affordable housing apartments to be managed by a CHP for 15 years (equating to at least 15% of the maximum permissible FSR x 30%).
    3. 5 affordable housing apartments for dedication in perpetuity (equating to at least 2% of the achieved GFA).
  - Two levels of basement for 109 residential parking spaces, 17 visitor parking spaces, 2 car share spaces, and 10 visitor bicycle spaces with vehicular access from Park Lane.
  - Storage areas and services.
- Communal open space and deep soil planting.
- Provision of utilities and services infrastructure, as required.

# 2 – Relevant framework (SEARS)

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARS) dated 20 December 2024 issued for the SSDA (SSD-78775458). Specifically, this report has been prepared to respond to the SEARS requirement issued below. Table 1.

Table 1 – Summary of Approach to SEARS

SEARs Item	Description of SEARs Requirement	Section Reference
15. Ecological Sustainable Development (ESD)	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.	Section 4.1
	Where relevant, provide an assessment of the development against the standards for non-residential development set out in Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022.	Section 4.2

## 2.1 EP & A (ESD) Principles

As part of addressing the SEARS, the project will be required to address Section 193 of the EP&A. Section 193 of the EP&A Regulation as at 2021 defines ecologically sustainable development (ESD) according to the following principles:

1. The principles of ecologically sustainable development are the following —
  - a) the precautionary principle,
  - b) inter-generational equity,
  - c) conservation of biological diversity and ecological integrity,
  - d) improved valuation, pricing, and incentive mechanisms.
2. The precautionary principle is that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
3. In applying the precautionary principle, public and private decisions should be guided by —
  - a) careful evaluation to avoid, wherever practicable, serious, or irreversible damage to the environment, and
  - b) an assessment of the risk-weighted consequences of various options.
4. The principle of inter-generational equity is that the present generation should ensure the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.
5. The principle of the conservation of biological diversity and ecological integrity is that the conservation of biological diversity and ecological integrity should be a fundamental consideration.
6. The principle of improved valuation, pricing and incentive mechanisms is that environmental

factors should be included in the valuation of assets and services, such as —

- a) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance, or abatement, and
- b) the users of goods and services should pay prices based on the full life cycle of the costs of providing the goods and services, including the use of natural resources and assets and the ultimate disposal of waste, and
- c) established environmental goals should be pursued in the most cost-effective way by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

## 2.2 Chapter 3 of SEPP 2022

(1) In deciding whether to grant development consent to non-residential development, the consent authority must consider whether the development is designed to enable the following—

- a) the minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials,
- b) a reduction in peak demand for electricity, including through the use of energy efficient technology,
- c) a reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design,
- d) the generation and storage of renewable energy,
- e) the metering and monitoring of energy consumption,
- f) the minimisation of the consumption of potable water.

(2) Development consent must not be granted to non-residential development unless the consent authority is satisfied the embodied emissions attributable to the development have been quantified.

# 3 – Stakeholder Engagement Guidance

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The following documents and design plans have been referenced in compilation of this report:

1. Green Star Design and As Built v1.3 and related GBCA submission templates and FAQ's.
2. Documents including drawings, specifications and reports listed below provided by “Lewis Peng” and received by Certified Energy at 24/02/2025.

## 2.1 Architectural drawings and specifications issued by PTW architects.

A000000 – Cover, Rev A Dated 14/03/2024.

A000001 – Perspective 01, Rev A Dated 14/03/2025.

A000002 – Perspective 02, Rev A Dated 14/03/2025.

A000003 – Perspective 03, Rev A Dated 14/03/2025.

A100010 – Development Data Sheet 1, Rev A Dated 14/03/2025.

A100011 – Development Data Sheet 2, Rev A Dated 14/03/2025.

A200020 – Location Plan, Rev A Dated 14/03/2025.

A200030 – Site Analysis, Rev A Dated 14/03/2025.

A200040 – Demolition Plan, Rev A Dated 14/03/2025.

A200050 – Setback & Separation, Rev A Dated 14/03/2025.

A200060 – Site Plan, Rev A Dated 14/03/2025.

B1B0010 – Basement 02 Plan, Rev A Dated 14/03/2024.

B1B0011 – Basement 01 Plan, Rev A Dated 14/03/2025.

B1L0001 – Lower Ground Floor Plan, Rev A Dated 14/03/2025.

B1L0002 – Upper Ground Floor Plan, Rev A Dated 14/03/2025.

B1L0003 – Level 01 Floor Plan, Rev A Dated 14/03/2025.

B1L0004 – Level 02 Floor Plan, Rev A Dated 14/03/2025.

B1L0005 – Typical Floor Plan (Lev 03 – Lev 06), Rev A Dated 14/03/2025.

B1L0006 – Level 07 Floor Plan, Rev A Dated 14/03/2025.

B1L0007 – Level 08 Floor Plan, Rev A Dated 14/03/2025.

B1ROF08 – Roof Plan, Rev A Dated 14/03/2025.

3. Email correspondence with and information received from the architect “Lewis Peng” of the Proposed Development.

# 4 – Project Response

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## 4.1 Response to ESD Principles

- **The Precautionary Principle:** The proposed development does not pose any serious threat to the environment, nor any irreversible damage to the environment. Construction of the project does not involve any land clearing and the site does not contain old growth forest, prime agricultural land, wetlands, or aspects considered to be ‘Matters of National Environmental Significance’. Additionally, the proposed development will provide biodiversity enhancement through significant areas of landscaping containing a high proportion of indigenous plant species, improved nature connectivity and land restoration activities. Waterway pollution will be minimised through stormwater management techniques and 90% of construction and demolition waste will be diverted from landfill.

- **Inter-generational Equity:** The proposed development will deliver on inter-generational equity by not consuming more resources than are required to sufficiently operate the building. The project will be designed to achieve a 10% improvement on the National Construction Code 2020 energy efficiency requirements. Inter-generational equity will be pursued further through the achievement of climate resilience, operational resilience, healthy internal environment for occupants, indigenous design and inclusion, contribution to the surrounding urban context and responsible construction facilitated by the projects equivalent of 5 Star Green Star Buildings rating.

- **Conservation of Biological Diversity and Ecological Integrity:** The proposed development minimises the consumption of energy and water resources whilst reducing waste. The ESD principles incorporated into the proposed development facilitates the conservation of energy and water resources through energy and water efficiency measures.

Energy consumption will be designed to achieve a minimum 10% improvement above National Construction Code requirements. The reduction in water use will be established through high WELS rated water fixtures and fittings, unless otherwise required for clinical purposes. Waste generated during the construction and operational phases will be diverted from landfill to be recycled. An Environmental Management System (EMS) will be established and adhered to throughout construction. Operational waste streams will be separated to maximise recycled waste. Reducing energy, water and waste ensures that the health, diversity and productivity of the environment is maintained for the benefit of future generations.

- **Improved Valuation, Pricing, and Incentive Mechanisms.** The proposed development is designed to minimise pollution and waste through responsible construction practices that divert construction and demolition waste from landfill, responsible management of operational waste and stormwater pollution and run-off is minimised. Major components of the project design have been driven by whole-of-life cycle cost decisions including structural design and building services design.

## 4.2 Response to Chapter 3 of SEPP

The proposed development addresses the requirements of SEPP (non-residential development) by adopting the following:

### **(a) the minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials,**

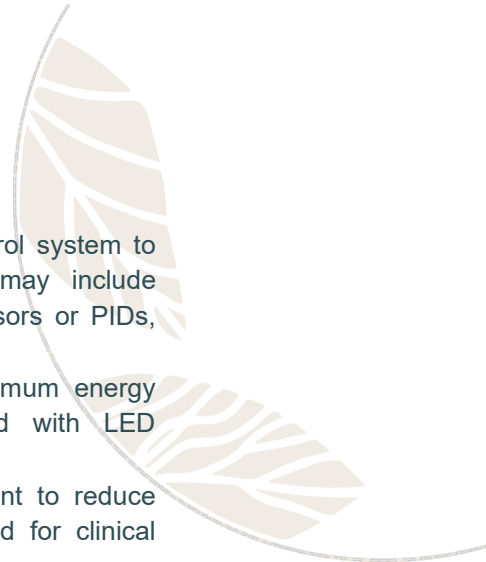
- Site waste management plan – During the demolition and construction phase, the development of a project-specific site waste management plan (WMP) will be assessed to reduce recycling of demolition and construction waste.
- Applying life cycle assessment principles and learnings in relation to:
  - concrete, steel and timber
  - minimising mass or volume of materials; and
  - implementing sound procurement practices.
- Pipe material selection based on current best practice such that:
  - PVC-u to be specified based on the GBCA guidelines
  - Polyethylene material to be specified for pressure water and gas services, as Polyethylene is recyclable and has significantly lower environmental impact than the alternative ductile iron material
  - Pipe bedding materials to be specified to be locally sourced, where practical
- Selecting permanent formworks, flooring, blinds and cables with no PVC or PVC products that comply to GBCA's best practice guidelines for PVC
- Specifying materials sourced with cradle to cradle credentials
- Reuse of materials on the site to limit waste, e.g. excavated bulk soil used in the formation of landscaped landforms for playgrounds around hospital

### **(b) a reduction in peak demand for electricity, including through the use of energy efficient technology,**

- The building services will be designed to achieve a high level of energy efficiency to achieve a 10% or more improvement on NCC 2022-Section J. The following strategies will be considered for implementation, subject to detailed design of the project:
  - A Building Management Control System (BMCS) to be installed with automatic intelligent controls to optimise plant efficiency, and monitor and record energy consumptions to reduce energy wastage
  - Air-cooled, heat recovery VRF (variable refrigerant flow) systems to be investigated where applicable
  - Airlocks at the entrances to be provided to avoid conditioned air from escaping the building, reducing energy wastage

### **(c) a reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design,**

- The project team will work to implement electrical services that assist energy efficient design, as detailed below, subject to detailed design of the project:

- 
- Robust, long-life LED lighting with automatic lighting control system to reduce energy wastage – lighting control strategies may include implementation of area dimming, time clock, daylight sensors or PIDs, subject to room function
  - External artificial lighting to be designed to exceed minimum energy efficiency requirements and, where possible, specified with LED luminaires with photocell and manual override control
  - Electrical equipment to be specified to be energy efficient to reduce building electricity consumption, unless otherwise required for clinical purposes

**(d) the generation and storage of renewable energy,**

- A Solar photovoltaic (PV) array can be located on rooftops. Energy generated onsite can be reused onsite.

**(e) The metering and monitoring of energy consumption,**

- A Building Management Control System (BMCS) to be installed with automatic intelligent controls to optimise plant efficiency, and monitor and record energy consumptions to reduce energy wastage.
- Energy efficient LED lighting, zoning, controls and site co-ordination for both internal and external lighting systems are to be designed.
- Occupancy controls will be provided to spaces so that AV, lighting and mechanical systems can be shut down both manually and automatically when unoccupied where appropriate.

**(f) The minimisation of the consumption of potable water.**

- Water efficient fixtures / fittings will be specified. These include fittings such as taps, showerheads, toilets, zip taps, dishwashers etc certified under the WELS rating scheme.
- Rainwater Reuse - Rainwater collection and reuse systems. Reuse options include landscape irrigation and toilet flushing.
- Efficient water management including water reuse, wastewater management, leaks detection, water monitoring and managing.
- Native species of plants and low water demand landscape design strategies.

## 4.3 Meeting or exceeding other relevant Industry Standards

### 4.3.1 National Construction Code, Part J Energy Efficiency

The National Construction Code Section J Energy Efficiency is the minimum mandatory energy efficiency requirement for all non-residential buildings in Australia. The code allows for the performance requirements to be met through either compliance with the “Deemed to Satisfy” solution or a “Performance Solution”.

The project is located within Climate Zone 5 – Mild temperate, and as such will require a balanced design to address both heating and cooling requirements of the development.

The project is proposing to meet the NCC requirement through the following:

- Section J, part J4 total system R-value, total system U-value and SHGC requirements for wall-glazing constructions and display windows, inclusive of thermal bridging effects
- Section J, part J6D5-6, part J6D8-9, part J6D10, part J6D11 and part J6D13 requirements for fan systems, pump systems, refrigerant chillers, and heat rejection equipment.
- Section J, part J7 requirements for artificial lighting systems

### 4.3.2 Green Star Rating Scheme

Green Star is a voluntary scheme administered by the national, not-for-profit organisation, Green Building Council of Australia (GBCA). The Green Star suite of tools provides an environmental sustainability rating of a building’s performance. The tools are performance based and assess the environmental attributes of new and refurbished buildings in every state across Australia. The Green Star rating system is scaled to a star level from 0 to 6 stars.

The project will achieve a 10% reduction in energy use in addition to compliance with the NCC Section J.

The project will not be targeting an official Green Star certification, rather it will follow the aims of specific credits to achieve the equivalency of a 5-star Green Star. The alignment of Green Star principles will be peer reviewed by a third party to ensure compliance with the targeted star rating

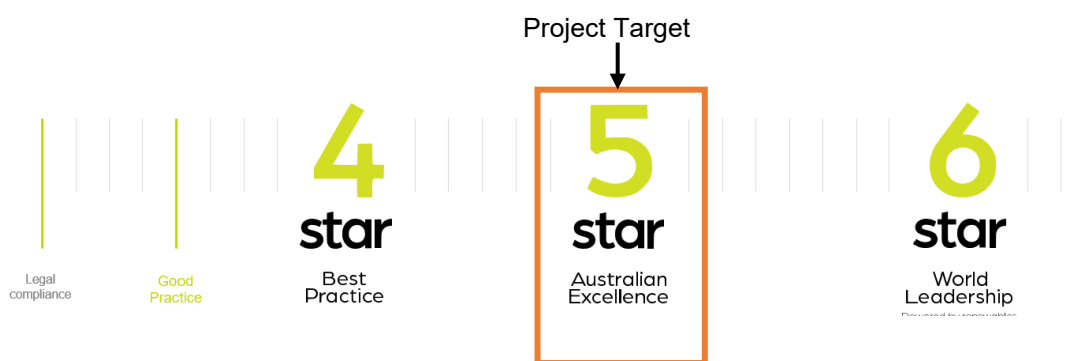


Figure 2 – Green Star Rating Scale

An equivalent 5-star Green Star Design & As Built v1.3 Pathway (See Appendix A – 3 Park Avenue Gordon Green Star Building Pathway) has been developed by the project team which outlines the relevant initiatives considered to the project. The pathway reflects the requirement of a minimum 35 points to be achieved. Typically, buffer points are allocated to ensure a targeted performance is maintained as emerging design and construction constraints may prevent points from being achieved. This represent a pathway that will be tested and refined as the project progresses through its design and construction phases.

# 5 – Conclusion

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This report details responses to the Department of Planning, Housing and Infrastructure's SEARs for the preparation of an Ecological Sustainable Development (ESD) for the proposed redevelopment.

The report demonstrates that a myriad of ESD initiatives can be incorporated within the current project design.

Further, the project team has developed an equivalent 5 star Green Star Design & As-Built v1.3 pathway (See Appendix A – Green Star Design & As Built v 1.3) outlining the relevant initiatives considered to the project. This represent a preliminary pathway that will be tested and refined as the project progresses through its design and construction phases.



# 6 – Appendix

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## 6.1 – Appendix A – 3 Park Avenue Gordon Green Star Building Pathway





## Submission planner

### Summary

#### Climate Positive Pathway

Registering from / certified	2026 onwards	Desired Green Star rating	5 Star
<b>Green Star rating</b>			
Core points targeted	79	Minimum expectations met	Yes
Leadership points targeted	0	Green Star rating targeted	6 Star
Total points targeted	79	Climate Positive Pathway met	Yes

Credit	Minimum Expectation	Credit Achievement	Exceptional Performance	Total points available	Targeted performance level	Total points targeted	Comments
<b>Responsible</b>				<b>17</b>			
1 Industry Development		1		1	Credit Achievement	1	
2 Responsible Construction	+	1		1	Credit Achievement	1	
3 Verification and Handover	+	1		1	Credit Achievement	1	
4 Operational Waste		2		0	Minimum Expectation	-	
5 Responsible Procurement	+	1		1	Credit Achievement	1	
6 Responsible Structure		3	2	5	Credit Achievement	3	
7 Responsible Envelope		2	2	4	Credit Achievement	2	
8 Responsible Systems		1	1	2	Credit Achievement	1	
9 Responsible Finishes		1	1	2	Credit Achievement	1	
<b>Total</b>						<b>11</b>	
<b>Healthy</b>				<b>14</b>			
10 Clean Air	+	2		2	Credit Achievement	2	
11 Light Quality	+	2	2	4	Credit Achievement	2	
12 Acoustic Comfort	+	2		2	Credit Achievement	2	
13 Exposure to Toxins	+	2		2	Credit Achievement	2	
14 Amenity and Comfort		2		2	Credit Achievement	2	
15 Connection to Nature		1	1	2	Credit Achievement	1	
<b>Total</b>						<b>11</b>	
<b>Resilient</b>				<b>8</b>			
16 Climate Change Resilience	+	1		1	Credit Achievement	1	
17 Operations Resilience		2		2	Credit Achievement	2	
18 Community Resilience		1		1	Credit Achievement	1	
19 Heat Resilience		1		1	Credit Achievement	1	
20 Grid Resilience		3		3	Credit Achievement	3	
<b>Total</b>						<b>8</b>	
<b>Positive</b>				<b>30</b>			
21 Upfront Carbon Emissions	+	3	3	6	Exceptional Performance	6	
22 Energy Use	+	3	3	6	Credit Achievement	3	
23 Energy Source	+	3	3	6	Exceptional Performance	6	
24 Other Carbon Emissions	+	2	2	4	Exceptional Performance	4	
25 Water Use	+	3	3	6	Credit Achievement	3	
26 Life Cycle Impacts		2		2	Credit Achievement	2	
<b>Total</b>						<b>24</b>	
<b>Places</b>				<b>8</b>			
27 Movement and Place	+	3		3	Credit Achievement	3	
28 Enjoyable Places		2		2	Credit Achievement	2	
29 Contribution to Place		2		2	Credit Achievement	2	
30 Culture, Heritage and Identity		1		1	Credit Achievement	1	
<b>Total</b>						<b>8</b>	
<b>People</b>				<b>9</b>			
31 Inclusive Construction Practices	+	1		1	Credit Achievement	1	
32 Indigenous Inclusion		2		2	Credit Achievement	2	
33 Procurement and Workforce Inclusion		2	1	3	Credit Achievement	2	
34 Design for Inclusion		2	1	3	Credit Achievement	2	
<b>Total</b>						<b>7</b>	
<b>Nature</b>				<b>14</b>			
35 Impacts to Nature	+	2		2	Credit Achievement	2	
36 Biodiversity Enhancement		2	2	4	Credit Achievement	2	
37 Nature Connectivity		2		2	Credit Achievement	2	
38 Nature Stewardship		2		2	Credit Achievement	2	
39 Waterway Protection		2	2	4	Credit Achievement	2	
<b>Total</b>						<b>10</b>	
<b>Leadership</b>				<b>0</b>			
40 Market Transformation				0		0	
41 Leadership Challenges				0		0	
<b>Total</b>						<b>0</b>	