www.partnersenergy.com.au

Project:	**Proposed Residential/Affordable Housing, Hotel and Commercial Office Development** **2-4 Burleigh Street and 20-24 Railway Parade Burwood**
Report:	**Ecological and Sustainability Design Report**
Date:	Revision 1 - 21/2/2025 Revision 0 - 16/12/2024
Reference:	23827
Contact:	Michael May 0488129546 michael@partnersenergy.com.au

PO Box 7209
East Ballina
NSW 2478

ABN 15418789019

TABLE OF CONTENTS

PAGE

SECTION 1 - BASIS OF ASSESSMENT 3
1.1 The Project 3
SECTION 2 - ENVIRONMENTAL PLANNING AND ASSESSMENT REGULATION 2021 PRINCIPLES 3
SECTION 3 – BUILDING SUSTAINABILITY AND ENVIRONMENTAL PERFORMANCE 4
3.1 Indoor Environment Quality 4
3.2 Energy Efficiency 5
3.3 Water Efficiency 6
3.4 Building Materials 6
3.5 Transport 6
3.6 Waste Management 7
SECTION 4 - STATE ENVIRONMENTAL PLANNING POLICY 2022 7
4.1 Embodied Emissions Material Form 7
4.2 Agreement to Rate for Hotel Component 7
SECTION 5 – NET ZERO PLAN STAGE 1: 2020-2030 PRINCIPLES 8
5.1 Drive uptake of proven emissions reduction technologies 8
5.2 Empower consumers and business to make sustainable choices 8
5.3 Invest in the next wave of emissions reduction innovation 9
5.4 Ensure the NSW Government leads by example 9

SECTION 1 - BASIS OF ASSESSMENT

1.1 The Project

The proposed development at 2-4 Burleigh Street and 20-24 Railway Parade, Burwood is a new innovative multi-storey mixed-use building comprising basement level car parking, commercial office levels, hotel levels and residential/affordable housing apartments.

The Ecological and Sustainability Design Report is a comprehensive holistic review of the project's design, identifying beneficial, easy-to-implement, and best practice initiatives that enhance the buildings ecological footprint. It evaluates the integration of energy-efficient systems, water conservation measures, and the use of sustainable materials, and highlights initiatives that enhance indoor environmental quality and promote the well-being of occupants.

This report identifies strategies that are both environmentally friendly and practical, including the use of renewable energy sources, such as solar panels, and innovative waste management solutions.

This report is required by the Environmental Planning and Assessment Regulation 2021 and it aligns with the NSW Net Zero Plan Stage 1:2020-2030. It also responds to the requirements contained in the Secretary's Environmental Assessment Requirements (SEARs) for Affordable Housing dated 5 February 2024, namely SEARs item 9:

- 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 – refer Section 2
- Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards – refer Section 3
- Demonstrate how the development minimises greenhouse gas emissions (reflecting the Government's goal of net zero emission by 2050) and consumption of energy, water (including water sensitive urban design) and material resources – refer Section 4

This report serves as a pivotal guide in steering the design process towards a harmonious balance between ecological responsibility and pragmatic benefits, reflecting a strong commitment to creating a sustainable, healthy, and efficient built environment.

SECTION 2 - ENVIRONMENTAL PLANNING AND ASSESSMENT REGULATION 2021 PRINCIPLES

The proposed development has endeavoured to incorporate the EPA regulation 2021 principles, as defined in clause 193, and the following points identify these principles and how they have been addressed in the overall project design and development.

2.1 Precautionary Principle

During the design and construction phase an Environmental Management Plan (EMP) will be developed and implemented. The EMP provides a systematic and methodical approach to environmentally friendly design and construction that responds to site specific environmental risks and hazards. Risks of serious or irreversible damage of the local environment have not been identified.

2.2 Inter-Generational Equity Principle

The development ensures the health, diversity and productivity of the environment are maintained or improved from the design and construction phases through to the ongoing operational phase of the development. Energy consumption will be minimised through thermally efficient construction, energy efficient services, water efficient fixtures and fitting, use of rainwater capture and reuse, and separation of waste streams to minimise the amount of waste sent to landfill and maximise recycling of materials. The ongoing nature of these initiatives leads to ongoing benefits for future generations.

2.3 Conservation of Biological Diversity and Ecological Integrity Principle

The development site is within an existing urban environment with limited capacity to impact Biodiversity and Ecological integrity. The conservation of local species will be incorporated into the landscape planning and the EMP, and a climate risk assessment will assist with future proofing the development.

2.4 Improved Valuation, Pricing, and Incentive Mechanisms Principle

The projects assets and services take into consideration the whole of life costing of the building materials and services as well as the ongoing operation costs and resource usage. Ongoing monitoring of energy and water usage as well as waste disposal will provide the best mechanisms to incentivise solutions and responses to environmental problems.

SECTION 3 – BUILDING SUSTAINABILITY AND ENVIRONMENTAL PERFORMANCE

The project has been designed in line with best practice sustainable building principles to improve environmental performance.

The design team are aware of and have been involved with the development of the ESD, to ensure that every action and decision takes into consideration the sustainability and environmental performance of the development. Consequently, the following ESD measures have been implemented.

3.1 Indoor Environment Quality

3.1.1 Thermal Comfort

The building fabric and services have been designed to meet and exceed the NCC Section J and BASIX energy efficiency requirements, ensuring a year round fit-for-purpose thermal environment. This approach ensures optimal indoor conditions regardless of the season, thereby enhancing occupant comfort and significantly reducing energy consumption.

3.1.2 Natural Ventilation

All spaces will adhere to minimum fresh air requirements, promoting a healthy indoor environment. Residential apartments will feature balconies, offering occupants the option for additional natural ventilation. Combined with individual controls for the air conditioning this design prioritises both energy efficiency and occupant well-being.

3.1.3 Daylight

Daylight will meet the stringent standards of the Apartment Design Guide (ADG), ensuring all apartments enjoy ample natural light and external views. Strategically placed windows maximise daylight penetration, reducing dependence on artificial lighting and contributing to significant energy savings. External views enhance the living environment, providing visual relief and a connection to the outside world, which can improve mood and productivity.

3.1.4 Hazardous Materials and VOC

The design incorporates low VOC materials throughout the fit-out, ensuring superior indoor air quality and mitigating health risks associated with volatile organic compounds. By prioritising low VOC materials, the design adheres to environmental standards while promoting a healthier indoor environment, reflecting the project's commitment to creating a safe, comfortable and eco-friendly space.

3.1.5 Acoustics

The design includes a comprehensive assessment of potential acoustic issues from road noise, rail noise and vibration. The building fabric design has been designed to address these issues, ensuring a quiet and comfortable environment for both occupants and visitors.

3.2 Energy Efficiency

3.2.1 Operating Energy

A BMS system will be implemented to oversee the air conditioning systems and other significant energy systems, ensuring efficient operation and management of the operational energy use.

3.2.2 Lighting

Lighting power will be well within the limits specified in NCC Section J7 and BASIX. Motion sensors and daylight sensors will be utilised where appropriate to optimise energy efficiency. And LED lighting will be used through out the development.

3.2.3 Air Leakage

The building fabric has been designed to meet industry standards and comply with the NCC 2022 requirements.

3.2.4 Building Fabric

The building fabric insulation will surpass the minimum NCC Section J and BASIX requirements, minimising heat transfer, improving thermal comfort and reducing the energy demand for heating and cooling. By exceeding regulatory standards, the building fabric contributes to lower operational costs and a reduced environmental footprint.

3.3 Water Efficiency

3.3.1 Water Metering

Water consumption will be metered and monitored to allow for detailed analysis and management. Submetering will be installed for major usage items to facilitate targeted water conservation efforts.

3.3.2 Landscaping irrigation

The landscape design prioritises water efficiency while enhancing the aesthetic appeal and functionality of communal areas. The use of drought-tolerant native plants and advanced irrigation methods minimises water consumption. A rainwater tank will supply water for the irrigation system, ensuring a sustainable approach to landscape maintenance.

3.3.3 Storm water capture and use

The design includes a stormwater retention tank to capture and store rainwater runoff, preventing local stormwater infrastructure overload and supporting non-potable purposes such as irrigation and landscape maintenance. The sustainable water management approach enhances the development's resilience against climate-related risks.

3.4 Building Materials

3.4.1 Embodied Energy of Concrete and Steel

Embodied energy considerations will be integrated in the final design phase, focusing on minimising the energy consumed during the production, transportation, and construction of building materials, particularly concrete and steel. The NABERS Embodied Emissions Materials Form (NSW SEPP) will be completed for this project.

3.5 Transport

3.5.1 Provide Bike Storage and showering facilities

The design includes secure and convenient bike storage facilities, encouraging alternative transportation methods and support a healthy lifestyle for occupants and visitors.

3.5.2 Public Transport

The development is very well serviced by existing public transport arrangements, accommodating the residential and commercial population effectively.

3.5.3 Electric Vehicle recharging stations

In compliance with Section J of the National Construction Code (NCC) 2022, the development will feature electric vehicle charging stations in the basement carparks. This initiative supports sustainable transportation by providing convenient charging solutions for electric vehicle owners.

3.6 Waste Management

3.6.1 Construction Waste Management

A comprehensive Construction Waste Management Plan will be developed, detailing specific provisions to minimise waste generation and maximise recycling during construction. This plan will outline strategies for sorting, recycling, and responsible disposing of construction waste, ensuring compliance and effective implementation throughout the construction process.

3.6.2 Operation Waste Management

An Operation Waste Management Plan will detail strategies managing waste generated during building operations, including recycling, composting, and proper disposal of waste materials in accordance with local regulations.

3.6.3 Storage areas for recycling and green waste

The design includes ample areas for the separation and collection of recycling and green waste from the apartments and commercial spaces, promoting efficient waste management and environmental sustainability by facilitating the proper disposal and processing of recyclable and green waste materials."

SECTION 4 - STATE ENVIRONMENTAL PLANNING POLICY 2022

4.1 Embodied Emissions Material Form

The NSW Government's State Environmental Planning Policy (Sustainable Buildings SEPP) has introduced embodied emissions measurement and reporting for all building types and associated materials. This project is required to complete the Embodied Emissions Material Form, that calculates the greenhouse gas emissions resulting from the materials used to construct the building that forms part of the development, including emissions from the following—

- the extraction of raw materials that are used to construct the building,
- transporting materials to be manufactured,
- the manufacture of the materials used to construct the building.

The Embodied Emissions Material Form for this project is based on the design drawings and details available at the time of the DA submission is included as a separate document in the DA submission.

4.2 Agreement to Rate for Hotel Component

The Sustainable Buildings SEPP requires additional items for large commercial development, and the hotel component triggers Chapter 3 and Schedule 3, namely a 4 Star NABERS energy rating and a 3 Star NABERS water rating must be completed for this development at the appropriate time according to the NABERS timelines.
This is demonstrated by having entered a NABERS Agreement to Rate to achieve the required star ratings under the NABERS rating scheme for Hotel developments.

SECTION 5 – NET ZERO PLAN STAGE 1: 2020-2030 PRINCIPLES

The Net Zero Plan Stage 1: 2020-2030 details the Governments objectives for the first decade of the path to net zero carbon. The stage 1 plan is made up of four key priorities:

1. drive uptake of proven emissions reduction technologies,
2. empower consumers and business to make sustainable choices,
3. invest in the next wave of emissions reduction innovation, and
4. ensure the NSW Government leads by example.

The following sections summarises how this development seeks to address these key priorities.

5.1 Drive uptake of proven emissions reduction technologies

This development will ensure the thermal performance of the building envelope will exceed the minimum requirements of the NCC Section J and BASIX, through:

- higher insulation levels in the walls and roof,
- higher thermal performance characteristic for both the commercial and residential glazing,
- maximise the shading structures and
- enhance the sealing of the building fabric.

The services for this development provide a significant opportunity to improve energy efficiency through technology.

- high energy efficiency performance of the HVAC systems,
- electrification of energy for water heating,
- optimisation of lighting layouts and controls,
- 100% use of LED lighting,
- lift operation including standby modes,
- higher efficiency rated appliances
- higher rated water fixtures
- provisions for electric vehicle charging stations in the car park levels

On site renewable energy options to be considered for the rooftop using photovoltaic (PV) panels.

5.2 Empower consumers and business to make sustainable choices

This development encourages the use of lower emission products and services which will provide opportunity to make more sustainable choices in a design and operational sense. The use of low carbon materials, low energy and water usage equipment at all stages of the development. In the design phase the following items demonstrate low carbon choices and encourage ongoing sustainable choices in the operation phase.

- the use of low carbon and low emission materials in the design and construction ,
- using a high energy efficient building fabric and service design,
- adopting low water need plantings in the landscape planning
- capturing and using rain water for landscape watering.

5.3 Invest in the next wave of emissions reduction innovation

To this end the building fabric for this development will include best practice thermal efficiency to ensure that any innovation in the services technology space will not be lost through outdated building fabric design. Key features of this development include:

- optimising balcony spaces to take advantage natural ventilation, and
- high thermally efficient building materials.

The building services have the most potential for innovation in energy efficiency and this development will be well placed to accommodate those upgrades as the innovations occurs. Key initiatives include:

- improvements in heat pump systems for water heating and space heating
- provisions for electric vehicle charging and vehicle to home technology
- switchboard capacity for additional PV and renewable energy technology installations
- switchboard capacity for onsite battery storage

5.4 Ensure the NSW Government leads by example

The NSW Government will lead the state in sustainable development target and resource efficiency in all public sector agencies under the NSW Government Resource Efficiency Policy (GREP). This investment in low emissions building products and services will ensure market confidence and set a high and affordable standard for commercial and residential developments in NSW. This development will be able to take advantage of the benefits that flow from the availability and affordability of low emission materials and relevant skills in the workforce.