

**PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL**



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**ESD Report for DA
Portside East, Hamilton
Brookfield Portside East Pty Ltd**

Attention: Michael Stanfield

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Revision History

Revision	Ref	Description	Author	Date
1.0	116012_1	ESD Report for DA	Luke Williams	11 th May 2023

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1 Introduction

Aspire Sustainability Consulting has been engaged to prepare an Ecologically Sustainable Design (ESD) report to accompany the Development Application regarding the proposed Portside East Development. This report outlines the sustainable design initiatives being explored for the development, demonstrating a commitment to achieve and exceed controls & objectives outlined in regulatory compliance provisions in addition to achieving a 4 Star Green Star rating under the 'Buildings' tool.

1.1. ESD Controls & Objectives

The following table references sections within the report where alignment is demonstrated with applicable planning schemes.

Table 1: ESD Controls & Objectives

Northshore Hamilton Scheme: Sustainable Development (Oct 22)	Design Response
2.5.4 Sustainable Development	
2.5.4.1 Sustainable Buildings	Please refer to Sections 4 & 5.
2.5.4.2 Liveability	Please refer to Sections 4 & 12.
2.5.4.3 Self Sufficiency	Please refer to Section 12.
2.5.4.4 Sustainable Infrastructure	Please refer to Sections 4, 8, 11 & 13.
2.5.4.5 Water Management	Please refer to Section 8 & 10.
2.5.4.6 Energy Efficiency	Please refer to Sections 4 & 5.
2.5.4.7 Waste Management	Please refer to Sections 7, 9 & 10.
Brisbane City Plan 3.5.4 Adaptation Approaches	Design Response
Adaptation to other Changing Climate Challenges	
S03: Brisbane's vulnerability to increased temperatures, including heatwaves, and more variable rainfall, including flood and drought, is minimised.	Please refer to Sections 7, 9 & 11.
QLD Development Code MP 4.1 Sustainable Buildings	Design Response
P2-P5 (Energy Efficiency)	Please refer to Section 4.
P6-P7 (Water Conservation)	Please refer to Section 7.
P9-P10 (Electricity Sub-metering)	Please refer to Section 4.
P12 (End of Trip Facilities)	Please refer to Section 5.

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 Portside East development is located at 11-23 Macarthur Avenue, Hamilton QLD 4007 and comprises two residential towers situated above a Ground Floor containing a communal lobby, gym and coworking space in addition to a basement carpark.



Figure 1: Site Layout

2.1. Information Sources

- NCC Section J 2019 Volume 1;
- Architectural drawing package: DA0100, DA0101, DA0102, DA0104, DA0105, DA0106, DA0107, DA0118, DA0124, DA2001, DA2002, DA2003, DA2004, DA2500;
- Northshore Hamilton Development Scheme Amendment 1 (Oct 22);
- QLD Development Code MP 4.1 Sustainable Buildings;
- Green Star Buildings Submission Guidelines.

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:

- Energy Efficiency & Sustainable Infrastructure
- Sustainable Rating Schemes
- Transport
- Liveability & Self Sufficiency
- Water Management
- Construction
- Land Use & Ecology
- Materials
- Pollution & Waste
- Climate Resilience

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

4 Energy Efficiency & Sustainable Infrastructure

The Portside East Development will consider the following initiatives throughout design development:

- Efficient, air-cooled HVAC systems that eliminate water consumption associated with heat rejection;
- Design to include provision for infrastructure to support an all-electric building;
- Heat Pump or Solar Thermal systems for hot water heating;
- Compliance with NCC 2019 Volume 1, Amendment 1 Energy Efficiency Requirements (Section J);
- Solar PV system to provide a portion of the sites power, whilst reducing peak power demands;
- Energy efficient LED lighting throughout with appropriate controls;
- Consideration of future modes of transport such as electric vehicles, design of streets and built form outcomes;
- Offsetting residual emissions and procurement of 100% electricity through Green Power contracts, allowing the development to be net zero in operation.

Passive design strategies currently included in design are outlined below:

- 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 absorbed through the roof and walls;
- Increased openings in habitable rooms combined with ceiling fans in all living and bedroom spaces, allowing mixed mode operation that significantly reduces reliance on artificial cooling or heating to maintain comfort conditions;
- Extensive shading throughout the site, reducing peak HVAC loads however allowing winter daylight penetration;
- Double glazing with a low SHGC, keeping heat out during summer whilst allowing heat to be kept within the dwelling during winter;
- Vegetation incorporated throughout site to provide shade;
- Thermal mass utilised where possible, helping to smooth out daily temperature peaks and troughs.

The development will verify performance post-construction through targeting certification with recognised sustainable rating systems that are discussed in Section 5.

5 Sustainable Rating Schemes

Aligning with the Northshore Hamilton Scheme (Oct 22), the Portside East development is targeting a certified 4 Star Green Star ‘Buildings’ rating through the Climate Positive Pathway, ensuring a sustainable development that avoids the use of fossil fuels on site, resulting in a development that is net zero emissions during operation.

In addition to a certified Green Star ‘Buildings’ rating, the apartments will target Exceptional Performance in the Green Star ‘Energy Use’ category, designed to achieve an average NatHERS 7 Star rating across the development, a minimum NatHERS Star rating of 5.5 Stars in addition to meeting maximum cooling and heating loads stipulated in QLD Development Code MP 4.1 Sustainable

Minimum NatHERS energy rating specified by the Greenstar buildings V1 tool for Exceptional performance to be achieved.

6 Transport

The development is located in a central location within Brisbane, well connected to a variety of sustainable modes of transport such as bicycle tracks, train stations and bus stops. Additional items that will be investigated during detailed design include:

- Showers & locker facilities for staff supporting active modes of transport;
- Provision of enhanced mobility options including scooter & bicycle rental schemes in addition to car share spaces;
- EV infrastructure and charging facilities;
- Bicycle parking facilities.

Provisions for End of Trip facilities will ensure to achieve targets set in local planning controls.

7 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, reflecting Brookfield Portside East Pty Ltd.’s commitment to providing developments with a reduced environmental footprint.

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;
- Concrete with reduced Portland cement quantities;
- Paints, adhesives & sealants specified to contain low VOC & formaldehyde, improving internal air quality.



Figure 2: Examples of third-party environmental product declarations that can be explored during design development.

8 Water Management

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;
- Ensuring native plant species are incorporated throughout, where possible;
- Water Sensitive Urban Design (WSUD) features integrated throughout design;
- Inclusion of a rainwater reuse tanks 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, Urinals & Dishwashers	5 stars
Toilet	4 stars
Showers	3 stars (> 4.5 but <= 6.0)
Clothes Washing Machines	4 Stars



Figure 3: WELS Water Rating Label

9 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;
- Concrete with a portion of Portland cement replaced with recycled aggregate.



Figure 4: Sustainable Waste Management Hierarchy

10 Pollution & Waste

ESD initiatives associated with pollution 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, cardboard and organic waste;
- Minimisation of construction waste to landfill.

11 Climate Resilience

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

- Rainwater tank to reduce the potable water consumption of the development and decrease reliance 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;
- High levels of vegetation, including deep soil zones able to house large trees providing shade to the site;
- Mixed mode HVAC operation, reducing peak building loads;
- No fossil fuel use in operation, allowing the development to operate with net zero emissions;
- Ensuring the development is constructed in accordance with recognised standards regarding wind tolerance and impacts from hail;
- Including areas for respite during extreme weather events.

12 Liveability & Self Sufficiency

Numerous design features are adopted to provide a development that is highly liveable, whilst contributing to a self-sufficient space far exceeding that of a typical high rise residential building in an urban environment. Design initiatives currently being explored include:

- Co-working spaces located on the Ground Floor providing residents with flexibility relating to place of work;
- On site gym, fitness centre & swimming pool for residents to use;
- Emphasis on location of habitable rooms, providing great access to ventilation & natural light;
- Communal gardens & spacious private balconies to allow residents to grow their own food;
- A rainwater tank to reduce the potable water consumption of the development and decrease reliance on central water infrastructure;
- Energy efficient building systems, rooftop Solar PV and the remaining electricity supplied to site procured from a renewable source.

13 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:

- Rainwater tank to reduce the potable water consumption of the development and decrease reliance on central water infrastructure;
- 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 planning controls, 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.



Figure 3: Level 5 Podium

The Level 5 Podium shows a high level of vegetation that improves local air quality, provides respite from summer sun and adds a sense of nature to a city environment.

14 Conclusion

This report demonstrates the development is on track to significantly exceeding sustainability requirements within applicable planning controls.

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 Brisbane community and beyond.