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188 – 202 SWAN STREET CREMORNE

SUSTAINABILITY MANAGEMENT PLAN

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DOCUMENT PROPERTIES

DOCUMENT BY: WRAP Engineering Pty Ltd
Level 2 600 Church Street,
Cremorne, Victoria 3121

DESCRIPTION: Sustainability Management Plan

PROJECT NAME: 188-202 Swan Street Cremorne

PROJECT NUMBER: 25268

DOCUMENT AMENDMENTS

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01	Draft issue	AK/KG	29/08/2025	KG/NS
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1 INTRODUCTION

This Sustainability Management Plan (SMP) has been prepared to assist the design, construction and operation of the proposed mixed use residential development at 188-202 Swan Street, Cremorne to achieve a range of best-practice sustainable development objectives.

WRAP Engineering have assessed the proposed plans and provided input to the design team. This SMP captures initiatives necessary to ensure that the development meets the sustainability requirements of the City of Yarra Council, in particular the ESD requirements of the following Planning Clauses:

- 15.01-2L-01 “Environmentally Sustainable Development”.
- 53.18 “Storm Water Management in Urban Development (Water Sensitive Urban Design)”
- 58 “Apartment Development”

1.1 SITE DESCRIPTION

The site at 188-202 Swan Street Cremorne is at the corner of Swan St, Royal Pl and Railway Pl and has an area of approximately 2,822 m². The site is currently occupied by low rise (two storey) retail buildings, which will be demolished prior to the construction of the project.

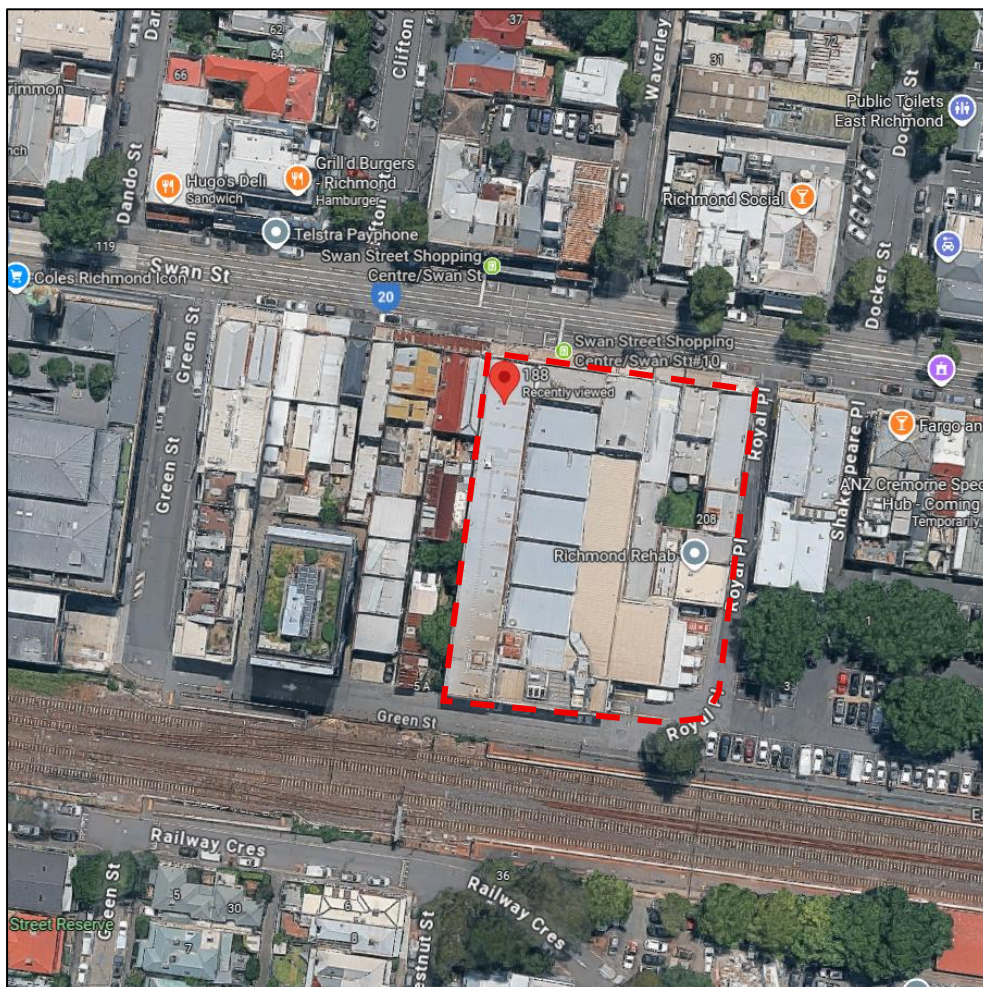


Figure 1: Aerial view of the site.

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1.2 DEVELOPMENT SUMMARY

The proposed development will consist of the following:

- Basement 4 to Basement 1: Car park, bicycle storage, and services.
- Ground Level: Retail tenancies, commercial space, apartment lobby and waste rooms.
- Level 1: Residential apartments, indoor and outdoor residents' amenities.
- Level 2 to 12: Residential apartments.
- Roof: Indoor and outdoor residents' amenities and services plant area.

1.3 COUNCIL PLANNING REQUIREMENTS

City of Yarra Council expects new developments to be designed, built and maintained at a level that reflects best practice sustainable development outcomes. The ESD response will need to ensure that the design meets sustainability targets in the areas of energy reduction, water use reduction and water sensitive urban design, indoor environment quality, materials selection, transportation, waste management and urban ecology.

City of Yarra Council encourages the implementation of SDAPP to enhance the sustainability of the built environment. For this project, the SDAPP framework on the 10 Key Sustainable Building Categories will be addressed. These categories are as follows:

- Indoor Environment Quality;
- Energy Efficiency;
- Water Efficiency;
- Stormwater Management;
- Building Materials;
- Transport;
- Construction and Waste Management;
- Urban Ecology;
- Building Management; and
- Innovation.

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The council's Planning Scheme also encourages the use of relevant ESD tools to assess the proposed development. For this project, the following tools will be used:

- Built Environment Sustainability Scorecard (BESS) – a holistic sustainability assessment tool;
- STORM – a stormwater assessment tool; and
- NatHERS – energy rating tool.

This SMP incorporates initiatives to ensure that the council's ESD requirements are satisfied by addressing the Key Sustainable Building Categories, demonstrating that council's Best Practice Standards will be achieved, and using relevant and appropriate ESD assessment tools.

1.4 REFERENCE DOCUMENTATION

This SMP should be read in conjunction with the other relevant documentation included within the development's town planning submission to council. These documents may include the following:

- Architectural documentation by Cox Architects dated 250912.
- Landscape plans.
- Waste Management Plan.
- Traffic engineer's report, transport plan, green travel plan or similar.

2 ESD ASSESSMENT

The following sections outline the ESD assessment which has been completed for the project. The assessment is presented within the Key Sustainable Building Categories, and for each item following information is provided:

1. A short description of the ESD initiative and/or the project's design response;
2. The nominated party responsible for implementation of the initiative; and
3. The stage of the project at which implementation could be demonstrated.

Within this assessment, the level of detail that has been provided is generally in proportion to what is appropriate or practicable at this early stage of design. This is described or explained within each item, with future commitments included as appropriate.

2.1 INDOOR ENVIRONMENT QUALITY

2.1.1 OBJECTIVES

- *To achieve a healthy indoor environment quality for the wellbeing of building occupants.*
- *To provide a naturally comfortable indoor environment will lower the need for building services, such as artificial lighting, mechanical ventilation and cooling and heating devices.*

2.1.2 DEVELOPMENT RESPONSE

ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE
<p>Volatile Organic Compounds All paints, adhesives and sealants and carpets will not exceed the limits outlined in Appendix A.</p>	Architect Services Engineer	Contract Documentation
<p>Formaldehyde All engineered wood products will have 'low' formaldehyde emissions, certified as E0 or better, or will not exceed the limits outlined in Appendix A.</p>	Architect	Contract Documentation
<p>Daylight <u>Residential Apartments:</u> High-VLT (> 60%) clear double glazing will be specified for the development. A daylight assessment has been completed using the BESS Dts residential daylight pathways and BESS built-in calculator and the results are: – 80% of living areas achieve a daylight factor of at least 1% – 80% of bedrooms achieve a daylight factor of at least 0.5%</p> <p><u>Non-Residential Spaces:</u> High-VLT (> 40%) glazing will be specified for the development. A Green Star daylight assessment has been completed for the project; the non-residential spaces achieve the required daylight factor of 2% for the following areas: – Retail tenancies – 31% – Commercial space – 31.8% Refer to Appendix B.</p>	Architect	Contract Documentation
<p>External Views All habitable rooms have high-quality external views.</p>	Architect	Design Development

ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE
Effective Ventilation 60% of the residential dwellings comply with the BESS natural ventilation requirements. Commercial tenancies will be provided with 50% extra outdoor air compared to the minimum required by AS 1668:2012.	Architect	Contract Documentation
Thermal Comfort <u>Residential Apartments:</u> The development will include high performance glazing to all apartments, and it will target an average house energy rating of at least 7 Stars and a minimum house energy rating of at least 6 Stars. <u>Non-Residential Spaces:</u> The development will be designed to be actively conditioned to achieve thermal comfort requirements.	Architect ESD Consultant Services Engineer	Contract Documentation

2.2 ENERGY EFFICIENCY

2.2.1 OBJECTIVES:

- *To ensure the efficient use of energy.*
- *To reduce total operating greenhouse emissions.*
- *To reduce energy peak demand.*
- *To reduce associated energy costs.*

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2.2.2 DEVELOPMENT RESPONSE

ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE
House Energy Ratings The project is targeting the following minimum house energy ratings: - Average Apartment rating: at least 7 Stars. - Average Individual Apartment rating: at least 6 Stars. - BADA maximum cooling load is anticipated to be achieved.	Architect ESD Consultant	Building Permit
Energy Efficiency The project is targeting the following minimum energy saving strategy: - All floors and ceilings (forming part of the envelope) demonstrate meeting the required NCC2022 insulation levels. - All wall and glazing demonstrate meeting or improving upon the NCC2022 facade calculator.	Architect ESD Consultant	Design Development
Heating and Cooling Systems The project will implement heating and cooling systems within one Star of the most efficient equivalent capacity unit available (or equivalent EER/COP).	Services Engineer	Contract Documentation
Energy Efficient Appliances Where domestic appliances are installed or provided by the developer, they will be within one star of the best available and comparable type of appliance, as per the Energy Rating program. This may include dishwashers or washing machines.	Interior Architect	Contract Documentation

ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE
Domestic Hot Water The project will implement a centralised air sourced heat pump hot water system.	Services Engineer	Contract Documentation
On-site Renewable Energy The project will install a solar PV array of maximum capacity in consideration of the available roof area and building services plant. The array will be at least 22 kW capacity, final sizing to be coordinated during the design development phase.	Architect Services Engineer	Contract Documentation
Artificial Lighting - The lighting design throughout the development will be at least 10% more energy efficient than the BCA requirements. - External and common area lighting systems will use daylight and occupancy sensors to control lighting energy usage.	Services Engineer	Contract Documentation
Energy Metering – Electricity All dwellings and tenants will be provided with individual electricity meters. All major base-building systems will be individually sub-metered to allow for effective building tuning.	Services Engineer	Contract Documentation

2.3 WATER EFFICIENCY

2.3.1 OBJECTIVES:

- *To ensure the efficient use of water.*
- *To reduce total operating potable water use.*
- *To encourage the collection and reuse of stormwater.*
- *To encourage the appropriate use of alternative water sources (e.g. grey water).*
- *To minimise associated water costs.*

2.3.2 DEVELOPMENT RESPONSE

ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE
Water Fixtures and Fittings The following Water Efficiency Labelling Scheme (WELS) star ratings will be specified: <ul style="list-style-type: none"> – Toilets: 4 Star; – Taps (bathroom and kitchen): 5 Star; – Showerheads: 4 Star (>6.0 but ≤7.5 L/min); – Dishwasher: 4-star; and – Urinals: 4-Star 	Architect	Contract Documentation
Water Efficient Appliances Where domestic appliances are installed or provided by the developer, they will be within one star of the best available and comparable type of appliance, as per the WELS program. This may include dishwashers or washing machines.	Architect	Contract Documentation

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ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE												
<p>Rainwater Collection and Reuse Rainwater harvesting for non-potable uses will be implemented as a water saving initiative. The details of this system for this development are as follows:</p> <table border="1" data-bbox="209 443 876 640"> <thead> <tr> <th>RWT</th> <th>Size</th> <th>Catchment</th> <th>Re-use</th> </tr> </thead> <tbody> <tr> <td>Rainwater Tank</td> <td>2x15 kL</td> <td>Roof</td> <td>Toilet flushing on middle and upper ground to level 5</td> </tr> <tr> <td>Dirty Water Tank</td> <td>5 kL</td> <td>Terrace</td> <td>Irrigation</td> </tr> </tbody> </table> <ul style="list-style-type: none"> - Rainwater tank location: Basement - Roof catchment area: 1036m² - Terrace catchment area: 606m² <p>Refer to Appendix D for details.</p>	RWT	Size	Catchment	Re-use	Rainwater Tank	2x15 kL	Roof	Toilet flushing on middle and upper ground to level 5	Dirty Water Tank	5 kL	Terrace	Irrigation	<p>Architect Services Engineer</p>	<p>Contract Documentation</p>
RWT	Size	Catchment	Re-use											
Rainwater Tank	2x15 kL	Roof	Toilet flushing on middle and upper ground to level 5											
Dirty Water Tank	5 kL	Terrace	Irrigation											
<p>Landscape Irrigation Common area landscaping will be supplied from the rainwater system and will use water-efficient irrigation systems as appropriate to each application. Landscape design will include a mixture of indigenous, native and exotic species selected for drought tolerance and general hardiness. Refer to landscape plans for further details.</p>	<p>Services Engineer Landscape</p>	<p>Contract Documentation</p>												
<p>Waterless HVAC All HVAC systems will use air-cooled heat rejection systems.</p>	<p>Services Engineer</p>	<p>Contract Documentation</p>												
<p>Fire System Test Water The fire water test system will not expel water for testing, or the fire systems will include temporary storage for 80% of the routine fire protection system test water and maintenance drain-downs for reuse on site.</p>	<p>Services Engineer</p>	<p>Contract Documentation</p>												
<p>Water Metering All dwellings will be provided with individual meters, and all major base-building systems will be individually sub-metered to allow for effective building tuning.</p>	<p>Services Engineer</p>	<p>Contract Documentation</p>												

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2.4 STORMWATER MANAGEMENT

2.4.1 OBJECTIVES:

- *To reduce the impact of stormwater run-off.*
- *To improve the water quality of stormwater run-off.*
- *To achieve best practice stormwater quality outcomes.*
- *To incorporate water sensitive urban design principles.*

2.4.2 DEVELOPMENT RESPONSE

ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE
Stormwater Pollution Reduction The project will achieve a best practice stormwater pollution reduction outcome by achieving a STORM score of at least 100%. Refer to Appendix D for details.	Architect Services Engineer	Contract Documentation

2.5 BUILDING MATERIALS

2.5.1 OBJECTIVES:

- *To minimise the environmental impacts materials used by encouraging the use of materials with a favourable lifecycle assessment based on the following factors:*
 - *Fate of material*
 - *Recycling/Reuse*
 - *Embodied energy*
 - *Biodiversity*
 - *Human health*
 - *Environmental toxicity*
 - *Environmental responsibility.*

2.5.2 DEVELOPMENT RESPONSE

ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE
Timber At least 95% of solid (not engineered) timber used in the project will be reused or will be from FSC or PEFC certified forests.	Contractor	Construction
Insulation All insulants will have zero ozone depletion potential (ODP).	Contractor	Construction
Refrigerants All HVAC refrigerants used in the development will be selected to have an Ozone Depletion Potential (ODP) of zero.	Services Engineer	Contract Documentation

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2.6 TRANSPORT

2.6.1 OBJECTIVES:

- To minimise car dependency.
- To ensure that the built environment is designed to promote the use of public transport, walking and cycling.

2.6.2 DEVELOPMENT RESPONSE

ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE
Active Transport Facilities The development will include the following facilities to support active transport: - secure bicycle parking spaces for use by residents.	Architect	Contract Documentation
Electric Vehicle Charging EV charging infrastructure to support future charging bays with a minimum one ready to use charger installed.	Services Engineer	Contract Documentation
Access to Public Transport The development is located in Cremorne, with a 'Rider's Paradise' access to trains and buses. It scores a Transit Score of 95 out of 100.	n/a	
Walking Access to Amenities The development has "Walkers Paradise" access to local amenities achieving a Walk Score of 99 out of 100.	n/a	

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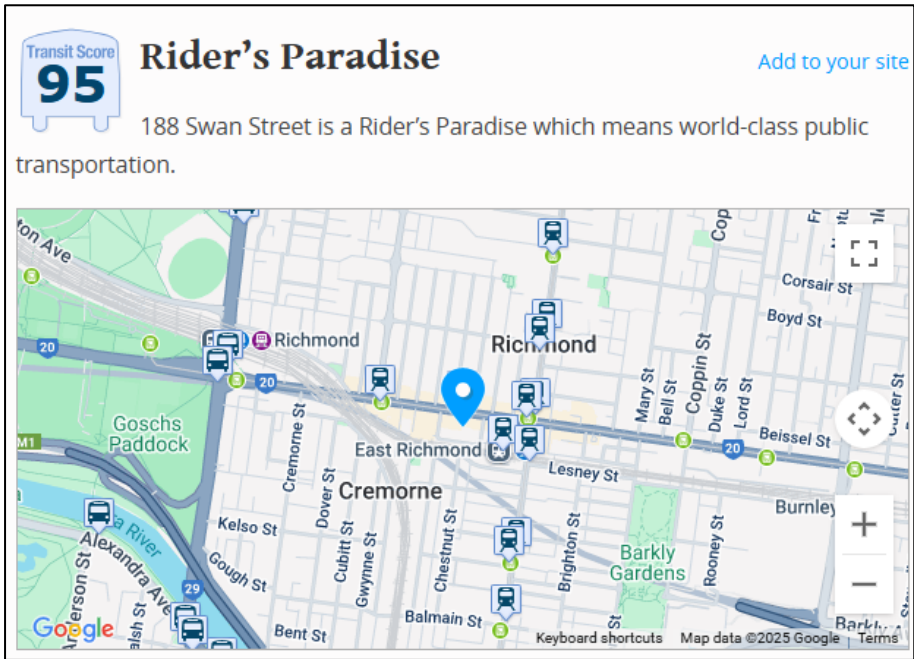


Figure 2 Public transport access

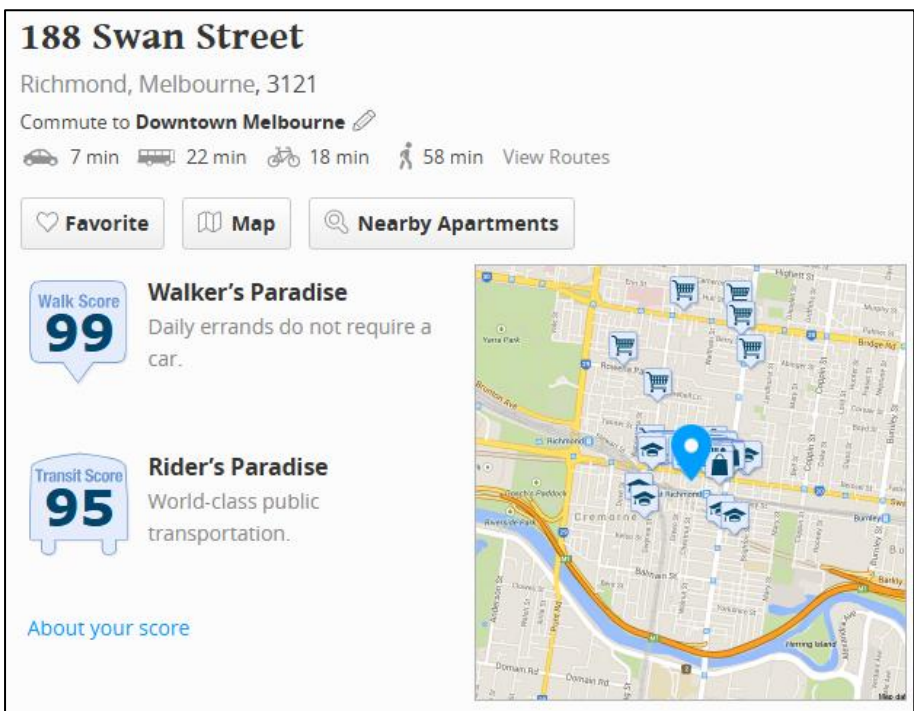


Figure 3: Walk Score and Transit Score for the site location

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2.7 WASTE MANAGEMENT

2.7.1 OBJECTIVES:

- To ensure waste avoidance, reuse and recycling during the design, construction and operation stages of development.
- To ensure long term reusability of building materials.
- To meet Councils' requirement that all multi-unit developments must provide a Waste Management Plan in accordance with the Guide to Best Practice for Waste Management in Multi-unit Developments 2010, published by Sustainability Victoria.

2.7.2 DEVELOPMENT RESPONSE

ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE
Construction Waste Management The contractor will prepare a construction waste management plan for the project and will divert at least 80% of all demolition and construction waste from landfill.	Contractor	Construction
Operational Waste A dedicated storage area will be provided for the collection of recyclable waste, e-waste and organic waste located in a convenient location. Recycling facilities will be separated from general waste and organic waste but will be located next to it.	Architect	Contract Documentation

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2.8 URBAN ECOLOGY

2.8.1 OBJECTIVES:

- To protect and enhance biodiversity.
- To provide sustainable landscaping.
- To protect and manage all remnant indigenous plant communities.
- To encourage the planting of indigenous vegetation.

2.8.2 DEVELOPMENT RESPONSE

ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE
Vegetation At least 20% of the site area will be covered by vegetation. This includes vegetation at ground level and within planters on all upper levels including terraces. Refer to the architectural plans for further details.	Landscape	Contract Documentation

2.9 CONSTRUCTION AND BUILDING MANAGEMENT

2.9.1 OBJECTIVES:

- *To encourage a holistic and integrated design and construction process and ongoing high performance.*

2.9.2 DEVELOPMENT RESPONSE

ESD INITIATIVE	RESPONSIBILITY & IMPLEMENTATION	PROJECT STAGE
Construction Environmental Management The contractor will prepare and implement a Best Practice project specific EMP at the start of construction. The EMP will be developed in accordance with the NSW Environmental Management Systems Guidelines or equivalent.	Contractor	Construction
Building User Guide Prior to occupancy, a Building User Guide (BUG) will be developed for use by the residents. The BUG will use non-technical language help facilitate more sustainable behaviour by building occupants and more efficient use of the building systems.	Developer	Construction
Building Information Prior to occupancy, a package of building information will be developed and handed over to the building manager. This will include as-built drawings, operations and maintenance manuals, and supplier and warranty details.	Contractor	Construction

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3 BESS ASSESSMENT

A summary of the BESS results is presented below. For full details of the project’s BESS assessment, please refer to the online portal.

BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 188 Swan St Cremorne Victoria 3121. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Yarra City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

Your BESS Score

70%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Project details

Name	188 Swan Street
Address	188 Swan St Cremorne Victoria 3121
Project ID	89AC6CFD-R3
BESS Version	BESS-9
Date	02 April 2026
Software version	2.3.0-B.649

Site type	Mixed use development
Account	admin@wrapengineering.com.au
Application no.	
Site area	2,822 m ²
Building floor area	15,050 m ²

Performance by category ● This project ● Maximum available

Category	Weight	Score	Pass
Management	5%	62%	✘
Integrated Water Management	23%	80%	✔
Operational Energy	28%	50%	✔
Indoor Environment Quality	17%	62%	✔
Transport	9%	89%	✘
Waste & Resource Recovery	6%	66%	✘
Urban Ecology	6%	88%	✘
Innovation	9%	100%	✘

The Built Environment Sustainability Scorecard is an initiative of the Council Alliance for a Sustainable Built Environment (CASBE).
For more details see www.bess.net.au

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APPENDIX A – VOC & FORMALDEHYDE LIMITS

VOC LIMITS – PAINTS, ADHESIVES & SEALANTS

PRODUCT CATEGORY	MAX. TVOC (g/L OF READY TO USE PRODUCT)
General purpose adhesives and sealants	50
Interior wall and ceiling paint, all sheen levels	16
Trim, varnishes and wood stains	75
Primers, sealers and prep coats	65
One and two pack performance coatings for floors	140
Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

VOC LIMITS – CARPETS

COMPLIANCE OPTIONS	COMPLIANCE CRITERIA
A – PRODUCT CERTIFICATION	<p>The product is certified under a recognised Product Certification Scheme (listed on the GBCA website http://new.gbca.org.au/product-certification-schemes/) or other recognised standards.</p> <p>The certificate must be current at the time of project registration or submission and list the relevant product name and model.</p>
B – LABORATORY TESTING	<p><u>ASTM D5116:</u></p> <ul style="list-style-type: none"> - Total VOC limit: 0.5mg/m² per hour, & - 4-PC limit: 0.05mg/m² per hour <p><u>ISO 16000 / EN 13419:</u></p> <ul style="list-style-type: none"> - TVOC at three days: 0.5mg/m² per hour <p><u>ISO 10580 / ISO/TC 219 (Document N238):</u></p> <ul style="list-style-type: none"> - TVOC at 24 hours: 0.5mg/m² per hour

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FORMALDEHYDE LIMITS

TEST PROTOCOL	EMISSION LIMIT/ UNIT OF MEASUREMENT
AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood	≤1mg/ L
AS/NZS 1859.1:2004 - Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.5 mg/L
AS/NZS 1859.2:2004 - MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1mg/ L
AS/NZS 4357.4 - Laminated Veneer Lumber (LVL)	≤1mg/ L
Japanese Agricultural Standard MAFF Notification No.701 Appendix Clause 3 (11) - LVL	≤1mg/ L
JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460	≤1mg/ L
JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460	≤1mg/ L
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	≤0.1 mg/m ² hr
ASTM D5116 (applicable to high pressure laminates and compact laminates)	≤0.1 mg/m ² hr
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	≤0.1 mg/m ² hr (at 3 days)
ASTM D6007	≤0.12mg/m ³
ASTM E1333	≤0.12mg/m ³
EN 717-1 (also known as DIN EN 717-1)	≤0.12mg/m ³
EN 717-2 (also known as DIN EN 717-2)	≤3.5mg/m ² hr

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APPENDIX B – DAYLIGHT ASSESSMENT

NON-RESIDENTIAL DAYLIGHT

A daylight assessment of the building’s non-residential primary spaces has been completed in accordance with the GBCA *Green Star Daylight Hand and Views Calculation Guide*, to estimate the areas which will receive a daylight factor of at least 2%.

Under this assessment methodology, there is a requirement that the project must specify glazing with Visible Light Transmission (VLT) at least 40%.

SPACE TYPE /LEVEL	NOMINATED FLOOR AREA (m ²)	DAYLIGHT COMPLIANT AREA (m ²)	COMPLIANCE %
Retail Tenancies / Ground	902	280	31.0%
Commercial / Ground	229	72.8	31.8%

Images of the Green Star Daylight “zone of compliance” levels are presented below:

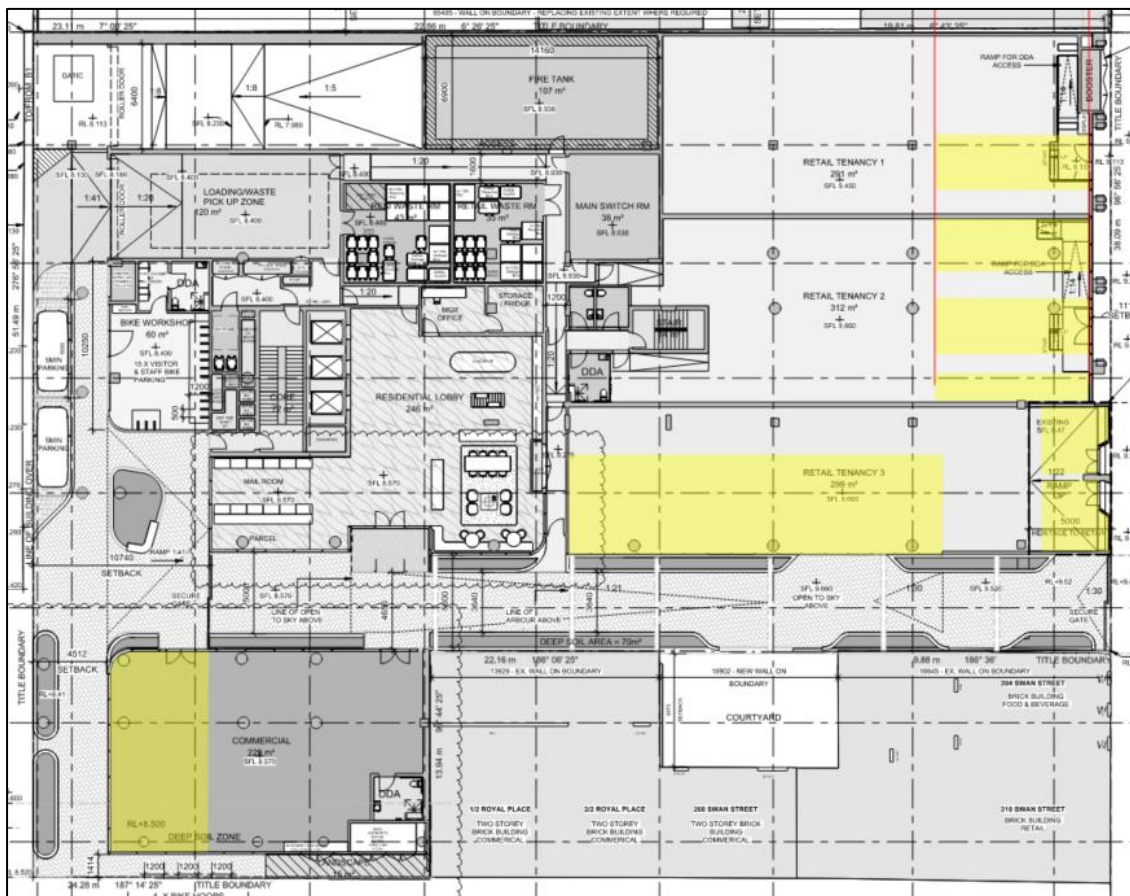


Figure 4 Non-residential daylight compliant area for Ground floor

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RESIDENTIAL DAYLIGHT

A preliminary daylight assessment has been completed for the proposed project to the residential floor layouts, as per the architectural set provided by the architects.

A project can demonstrate compliance with BESS with one or a combination of the following options:

1. Deemed-to-satisfy (DtS)
2. BESS built-in-calculator
3. Daylight modelling

Each dwelling within the development has been assessed for daylight amenity using a combination of both BESS Deemed-to-satisfy and the BESS Built-in-calculator pathways. BESS requires 80% compliance for both living rooms and bedrooms comply with daylight requirements.

The overall results combined with both the provisions achieves the following results for the project.

% LIVING ROOMS – ACHIEVING DAYLIGHT COMPLIANCE	80%
% BEDROOMS – ACHIEVING DAYLIGHT COMPLIANCE	80%

The detail of the assessment is shown below.

DAYLIGHT BESS DEEMED-TO-SATISFY

For the Deemed-to-satisfy pathway, the spaces within the apartments have been assessed to comply with the following requirements:

- All living areas and bedrooms less than **8m deep (5m if facing south)**
- All living areas and bedrooms have a **floor-to-ceiling height of at least 2.7m**
- All glazing to living areas achieve at least **60% Visible light transmittance**
- All living areas have an **external facing window** (not into a courtyard, light well or other major obstruction)
- Buildings comply with the following **separation distance** requirements as per below:

Building separation to adjacent properties

BUILDING HEIGHT	LIVING/MAIN BALCONY OUTLOOK TO BOUNDARY LINE	BEDROOM OUTLOOK TO BOUNDARY LINE
Up to 4 storeys / 12 metres	6 metres	3 metres
5-8 storeys / up to 25 metres	9 metres	4.5 metres
9+ storeys / over 25 metres	12 metres	6 metres

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Building separation to a lane

BUILDING HEIGHT	LIVING/MAIN BALCONY OUTLOOK	BEDROOM OUTLOOK
2 storeys / 9 metres	0 metres (from boundary)	0 metres (from boundary)
3-8 storeys / up to 25 metres	6 metres (from lane centre line)	3 metres (from lane centre line)
9+ storeys / over 25 metres	9 metres (from lane centre line)	6 metres (from lane centre line)

The results of this assessment are provided below for the Deemed-to-satisfy pathway.

RESIDENTIAL DAYLIGHT	LIVING AREAS	BEDROOMS
Quantity	165	295
Compliant	122	236
Overall Compliance	74.0%	80.0%

RESIDENTIAL DAYLIGHT BESS BUILT-IN-CALCULATOR

Each dwelling that has not complied with the BESS DtS method has been re-assessed under the BESS daylight built-in calculator pathway. This assesses the nominated zones orientation and angle of clearance from a vertical and horizontal view.

For each of the spaces that are not achieving Auto Pass via Deemed-to-satisfy, the following data has been included into the Built-in-calculator:

- Room floor area
- Vertical angle for the window
- Horizontal angle for the window
- Window area
- Glass type

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The results of this assessment are provided below.

RESIDENTIAL DAYLIGHT	LIVING AREAS	BEDROOMS
Quantity	43	-
Compliant	10	-

The overall results combined with both the provisions achieves the following results for the project.

RESIDENTIAL DAYLIGHT	LIVING AREAS	BEDROOMS
Quantity	165	295
Compliant	132	236
Overall Compliance	80.0%	80.0%

APPENDIX C – EFFECTIVE NATURAL VENTILATION

EFFECTIVE CROSS VENTILATION BESS CRITERIA

The following requirements should be met to achieve effective cross ventilation as per BESS:

- A breeze path between 2 ventilation openings either within the room or from one room to another.
- Breeze path length less than 15m measured between ventilation openings and around internal walls, obstructions & partitions.
- Ventilation openings located either in opposite or adjacent external walls or an external wall and an operable skylight.
- Size of ventilation openings greater than 2% of total floor area or 1m², whichever is greater. The opening is the maximum allowable clear open area for the window. ie if floor area of room is 55m² then clear open area of window / door must be at least 1.1m²

Each dwelling within the development has been assessed for effective ventilation against the BESS criteria for cross-ventilation or single-sided ventilation. The results of this assessment are presented below.

TOTAL NUMBER OF APARTMENTS	165
NO. APARTMENTS – EFFECTIVE NATURAL VENTILATION	100
% APARTMENTS – EFFECTIVE NATURAL VENTILATION	60%
BESS COMPLIANCE ACHIEVED	YES

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APPENDIX D – STORMWATER ASSESSMENT

OVERVIEW

Under clause 53.18 of the City of Yarra Council Planning Scheme, “Storm Water Management in Urban Development (Water Sensitive Urban Design)”, the proposed development is required to demonstrate, as part of its town planning application, its ability to meet the water quality performance objectives as set out in the Urban Stormwater Best Practice Environmental Management Guidelines, Victorian Stormwater Committee 1999.

In response to this, the Water Sensitive Urban Design Response proposed for this development has been assessed using the STORM software.

The preliminary stormwater treatment proposed for this development achieves best practice performance objectives outlined in the Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO 1999) to achieve the objectives of the State Environment Protection Policy (Water of Victoria).

General considerations and potential maintenance activities for the proposed WSUD response have been outlined in this report. The final detailing of the systems will be agreed with the civil and hydraulic design consultants.

General measures to be considered by the building contractor to minimise stormwater pollution during construction have also been included.

BASIS OF ASSESSMENT

Clause 53.18 of the City of Yarra Council Planning Scheme aims to achieve improved stormwater quality. The policy is based on the best practice performance objectives outlined in the Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO 1999) to achieve the objectives of the State Environment Protection Policy (Water of Victoria). These performance objectives are:

- Suspended solids - 80% retention of typical urban annual load
- Total Nitrogen – 45% retention of typical urban annual load
- Total Phosphorus – 45% retention of typical urban annual load
- Litter – 70% reduction of typical urban annual load.

The policy also aims to promote use of Water Sensitive Urban Design (WSUD) strategies as well as stormwater re-use, minimise peak stormwater flows and pollutants, and mitigate the detrimental effect of development on downstream waterways.

In accordance with the requirements outlined in Clause 53.18, the application must address the following:

- Site layout plan showing location of proposed stormwater treatment measures;
- A report outlining how the application achieves the objectives of the policy;
- Design details, such as cross sections, to assess the technical effectiveness of the proposed stormwater treatment measures;
- A Site Management Plan which details how the site will be managed through construction; and
- A maintenance programme setting out future operational and maintenance arrangements.

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PERFORMANCE MEASUREMENT TOOL

The Water Sensitive Urban Design Response proposed for this development has been assessed using the STORM software.

DEVELOPMENT RESPONSE – WSUD

A summary of the development’s WSUD response is presented below:

CATCHMENT AREA	AREA	TREATMENT TYPE
Roof	1036m ²	2x15kL RWT (RWT-1 & 2) re-use to toilets from lower ground floor to level 5.
Planter	648m ²	No treatment
Other Impervious	606m ²	1x5kL RWT (RWT-3) re-use for irrigation.

- Legend
- Planter Area
 - Roof Area
 - Terrace Area

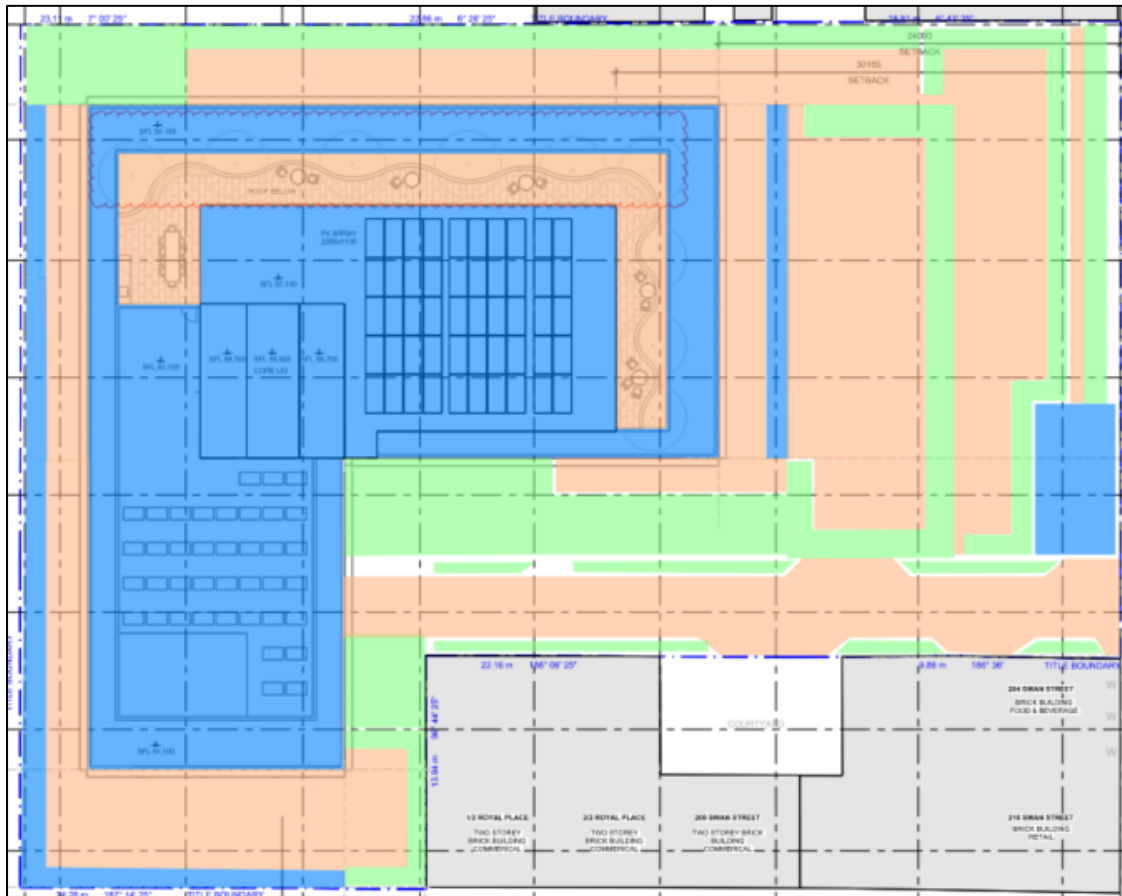


Figure 5 Site total stormwater catchment area

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WSUD ASSESSMENT RESULTS

Based on the stormwater treatment details described above, the development achieves a STORM score of 103%.

Melbourne Water		STORM Rating Report				
TransactionID:	0					
Municipality:	YARRA					
Rainfall Station:	YARRA					
Address:	188 Swan Street					
	Cremorne					
	VIC	3121				
Assessor:						
Development Type:	Residential - Mixed Use					
Allotment Site (m2):	2,822.00					
STORM Rating %:	103					
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Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
RWT 1A	518.00	Rainwater Tank	15,000.00	50	168.00	82.00
RWT 1B	518.00	Rainwater Tank	15,000.00	50	168.00	82.00
RWT DIRTY TANK	606.00	Rainwater Tank	5,000.00	10	77.20	81.80
UNTREATED	511.00	None	0.00	0	0.00	0.00

Figure 6 STORM Rating Report

RAINWATER TANK DESIGN & INSTALLATION CONSIDERATIONS

Rainwater tanks provide flow retention capacity and storage for reuse. They reduce stormwater run-off, decrease the demand of potable water and allow particle settlement within the tank, thus treating rainwater. General considerations for rainwater tank systems design and potential maintenance activities include:

- Incorporating a first flush device to the rainwater collection system. First flush devices divert the initial most polluted portion of water runoff.
- Automated switches to divert water supply from the tank to mains need to be incorporated.
- Connection to toilets ensure water tanks are run down on a daily basis, leaving spare capacity for new rainwater collection.

STORMWATER RUNOFF TREATMENT DURING THE CONSTRUCTION STAGE

Stormwater management in the construction stage will be required to minimise the likelihood of contaminating stormwater discharge from the site and reducing the velocity of the flows generated from the development as it is being constructed.

Stormwater management will form a part of the contractor's EMP, and it will need to specifically address the following objectives:

1. Prevent discharge of contaminated stormwater;
2. Prevent impact on offsite surface or groundwater due to construction works; and
3. Slow down stormwater flows during heavy rainfall.

The EMP should consider the following specific items in relation to stormwater management:

- Storage of materials, chemicals and construction waste must be well clear of site drainage lines or other infrastructure;
- Immediate clean-up of chemical spills;
- Soil and dust containment;
- Regular cleaning of roadways and other impervious surfaces;
- Install sediment or silt traps around stormwater drain points;
- Prevent stormwater from adjacent properties entering the site;
- Capping/bunding of piles of contaminated materials or soil;
- Inspect and clean all sediment filters and traps after heavy rains; and
- Regularly evaluate site stormwater management systems for effectiveness.

More information is available from Melbourne Water booklet “*Keeping Our Stormwater Clean – A Builder’s Guide*”.

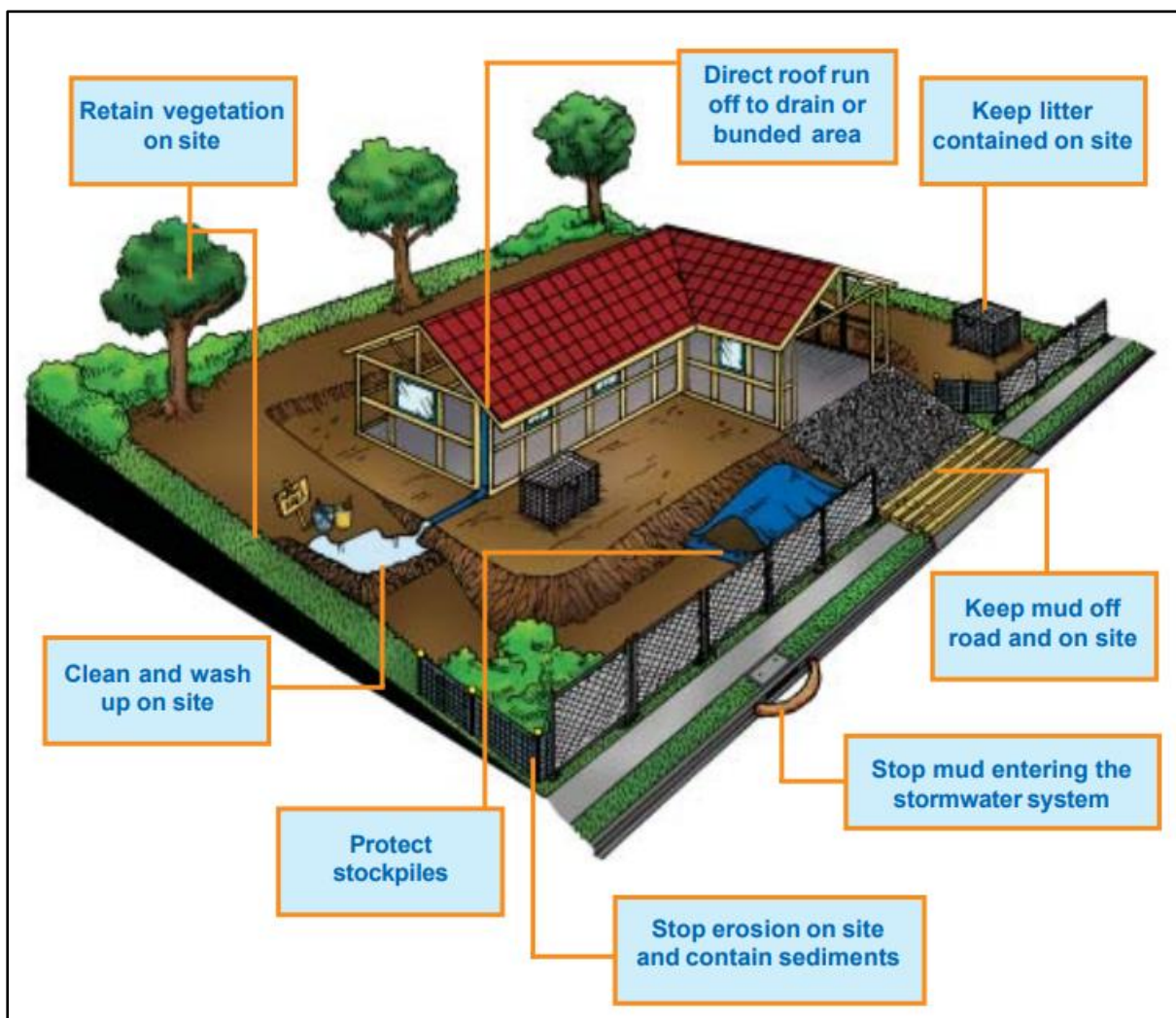


Figure 7: Site stormwater management considerations. Source: Melbourne Water – *Keeping Our Stormwater Clean: A Builder’s Guide*

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STORMWATER MAINTENANCE PROGRAMME

The proposed rainwater harvesting system will be maintained in accordance with the manufacturer's requirements. The building owner, body corporate or facility manager will be responsible for undertaking the routine maintenance and ensuring that the system is operating as designed.

The following specific maintenance activities will be required as a minimum:

- Roof and other rainfall collection areas are to be inspected regularly, at minimum every 3 months, to ensure they are kept free of pollutants, leaves and other debris;
- First flush devices should be cleaned at least every 6 months; and
- Routine maintenance as specified by the manufacturers for the hardware; pumps, tanks and filters.

Sludge layers and biofilms can be formed in the tank's walls. If water colour and smell become an issue, professional tank cleaners should be engaged.

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APPENDIX E – BESS ASSESSMENT

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BESS Report

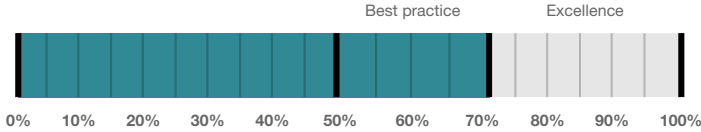
Built Environment Sustainability Scorecard



This BESS report outlines the sustainable design commitments of the proposed development at 188 Swan St Cremorne Victoria 3121. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Yarra City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

Your BESS Score



70%

Project details

Name 188 Swan Street
Address 188 Swan St Cremorne Victoria 3121
Project ID 89AC6CFD-R3
BESS Version BESS-9
Date 02 April 2026
Software version 2.3.0-B.649

Site type Mixed use development
Account admin@wrapengineering.com.au
Application no.
Site area 2,822 m²
Building floor area 15,050 m²



Performance by category

● This project ● Maximum available

Category	Weight	Score	Pass
Management	5%	62%	●
Integrated Water Management	23%	80%	✓
Operational Energy	28%	50%	✓
Indoor Environment Quality	17%	62%	✓
Transport	9%	89%	●
Waste & Resource Recovery	6%	66%	●
Urban Ecology	6%	88%	●
Innovation	9%	100%	●

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Buildings

Name	Height	Footprint	% of total footprint
Retails	1	902 m ²	20%
Commercial	1	229 m ²	5%
Amenities	2	785 m ²	18%
Apartments	12	2,424 m ²	55%

Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	Building	% of total area
Apartment				
Apartment 1	1	13,134 m ²	Apartments	87%
Total	1	13,134 m²	87%	

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Office				
Office	1	229 m ²	Commercial	1%
Total	1	229 m²	1%	
Shop				
Retail	1	902 m ²	Retails	5%
Total	1	902 m²	5%	
Public building				
Amenities	1	785 m ²	Amenities	5%
Total	1	785 m²	5%	

Project composition

● Apartment ● Shop ● Public building

Building composition

● Apartments ● Retails ● Amenities

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Supporting Evidence

Shown on Floor Plans

Credit	Requirement	Response	Status
Management 3.1	Annotation: Individual utility meters to be provided to all individual dwellings		-
Management 3.2	Annotation: Individual utility meters to be provided to all individual commercial tenancies		-
Management 3.3	Annotation: Sub-meters to be provided to all major common area services (list each)		-

Credit	Requirement	Response	Status
Integrated Water Management 2.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
Operational Energy 4.2	Location and size of solar photovoltaic system		-
Indoor Environment Quality 1.1	If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.		-
Indoor Environment Quality 1.2	If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.		-
Indoor Environment Quality 1.3	If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.		-
Indoor Environment Quality 2.1	Dwellings meeting the requirements for being 'naturally ventilated'		-
Transport 1.1	Location of residential bicycle parking spaces		-
Transport 1.4	Location of non-residential bicycle parking spaces		-
Transport 1.5	Location of non-residential visitor bicycle parking spaces		-
Transport 1.6	Location of showers, change rooms and lockers as nominated		-
Transport 2.1	Location of electric vehicle charging infrastructure		-
Transport 2.2	Location of car share parking space(s)		-
Transport 2.3	Location of nominated motorcycle parking spaces		-
Waste & Resource Recovery 2.1	Location of food and garden waste facilities		-
Waste & Resource Recovery 2.2	Location of recycling facilities		-
Urban Ecology 1.1	Location and size of communal spaces		-
Urban Ecology 2.1	Location and size of vegetated areas		-
Urban Ecology 2.2	Location and size of green roof		-
Urban Ecology 2.3	Location and size of green facade		-
Urban Ecology 2.4	Location of taps and floor waste on balconies / courtyards		-
Urban Ecology 3.1	Location of food production areas		-
Urban Ecology 3.2	Location of food production areas		-

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Supporting Documentation

Credit	Requirement	Response	Status
Management 2.2	Preliminary NatHERS assessments		-
Management 2.3a	Section J glazing assessment		-
Management 2.3b	Preliminary modelling report		-
Integrated Water Management 2.1	STORM report or MUSIC model		-
Operational Energy 1.1	Energy Report showing calculations of reference case and proposed buildings		-
Operational Energy 3.6	Average lighting power density and lighting type(s) to be used		-
Operational Energy 3.7	Average lighting power density and lighting type(s) to be used		-
Operational Energy 4.2	Specifications of the solar photovoltaic system(s)		-
Indoor Environment Quality 1.1	If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.		-
Indoor Environment Quality 1.2	If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.		-
Indoor Environment Quality 1.3	If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.		-
Indoor Environment Quality 1.4	A short report detailing assumptions used and results achieved.		-
Indoor Environment Quality 2.1	A list of naturally ventilated dwellings		-

Credit summary

Management Overall contribution 4.5%

		62%
1.1 Pre-Application Meeting		0%
2.2 Thermal Performance Modelling - Multi-Dwelling Residential		100%
2.3 Thermal Performance Modelling - Non-Residential		100%
3.1 Metering - Residential		100%
3.2 Metering - Non-Residential		100%
3.3 Metering - Common Areas		100%
4.1 Building Users Guide		100%

IWM Overall contribution 22.5%

		80%	✓ Pass
1.1 Potable Water Use		40%	✓ Achieved
2.1 Stormwater Treatment		100%	✓ Achieved
3.1 Water Efficient Landscaping		N/A	✦ Scoped Out
Scope out			
4.1 Building Systems Water Use		100%	

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Operational Energy Overall contribution 27.5%

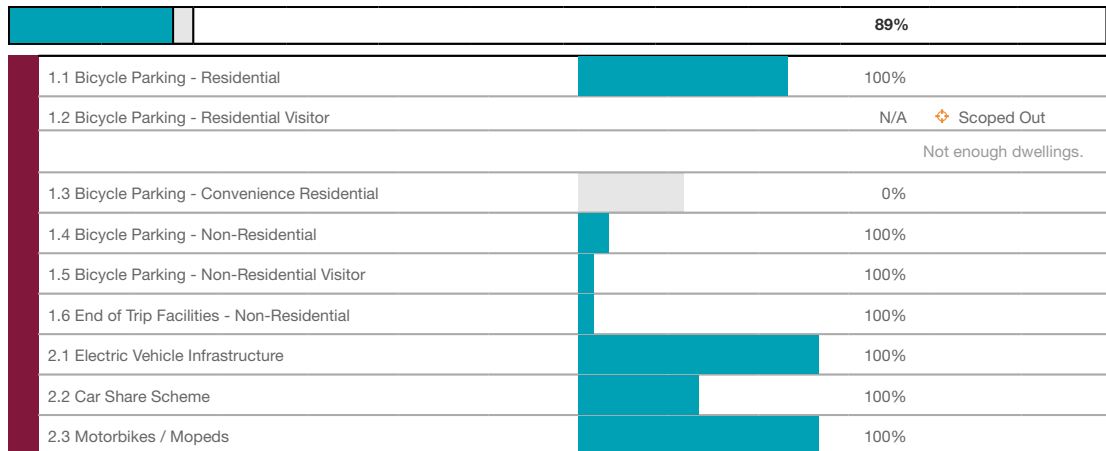
		Minimum required 50%	50%	✔ Pass
1.1 Thermal Performance Rating - Non-Residential			37%	
1.2 Thermal Performance Rating - Residential			0%	✔ Achieved
2.1 Greenhouse Gas Emissions			95%	
2.2 Peak Demand			100%	
2.6 Electrification			0%	
2.7 Energy consumption			100%	
3.1 Carpark Ventilation			0%	
3.2 Hot Water - Non-Residential			100%	
3.4 Clothes Drying			0%	
3.6 Internal Lighting - Apartments			100%	
3.7 Internal Lighting - Non-Residential			100%	
4.1 Combined Heat and Power (cogeneration / trigeneration)			N/A	✦ Scoped Out
No cogeneration or trigeneration system in use.				
4.2 Renewable Energy Systems - Solar			100%	
4.4 Renewable Energy Systems - Other			0%	

IEQ Overall contribution 16.5%

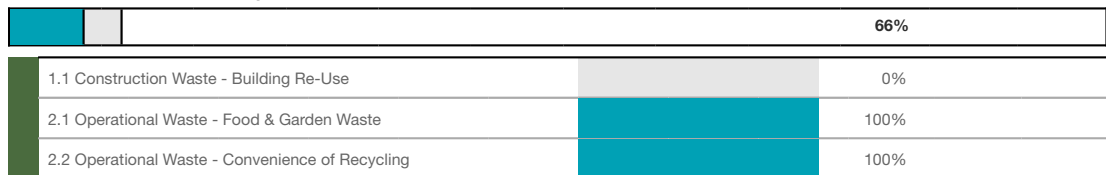
		Minimum required 50%	62%	✔ Pass
1.1 Daylight Access - Living Areas			66%	
1.2 Daylight Access - Bedrooms			66%	
1.3 Winter Sunlight			100%	
1.4 Daylight Access - Non-Residential			40%	✔ Achieved
2.1 Ventilation - Natural - Apartments			66%	
2.3 Ventilation - Non-Residential			33%	✔ Achieved
3.4 Thermal comfort - Shading - Non-Residential			0%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential			0%	
4.1 Air Quality - Non-Residential			100%	

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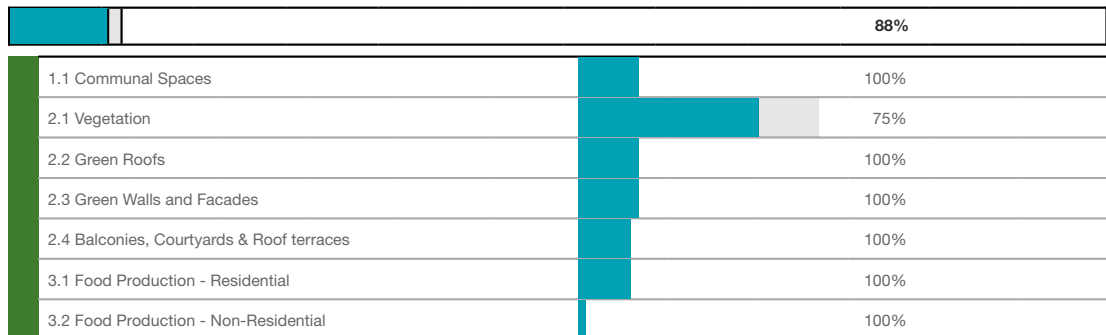
Transport Overall contribution 9.0%



Waste & Resource Recovery Overall contribution 5.5%



Urban Ecology Overall contribution 5.5%



Innovation Overall contribution 9.0%



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Credit breakdown

Management Overall contribution 4.5%

	62%
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1.1 Pre-Application Meeting	0%
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Score Contribution	This credit contributes 37.5% towards the category score.
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?
Question	Criteria Achieved ?
Project	No

2.2 Thermal Performance Modelling - Multi-Dwelling Residential	100%
---	------

Score Contribution	This credit contributes 21.8% towards the category score.
Criteria	Have preliminary NatHERS ratings been undertaken for all thermally unique dwellings?
Question	Criteria Achieved ?
Apartment	Yes

2.3 Thermal Performance Modelling - Non-Residential	100%
--	------

Score Contribution	This credit contributes 3.2% towards the category score.
--------------------	--

Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2022 Section J4D6?
Question	Criteria Achieved ?
Office	Yes
Shop	Yes
Public building	Yes

Criteria	Has preliminary modelling been undertaken in accordance with either NCC2022 Section J (Energy Efficiency), NABERS or Green Star?
Question	Criteria Achieved ?
Office	Yes
Shop	Yes
Public building	Yes

3.1 Metering - Residential	100%
-----------------------------------	------

Score Contribution	This credit contributes 10.9% towards the category score.
Criteria	Have utility meters been provided for all individual dwellings?
Question	Criteria Achieved ?
Apartment	Yes

3.2 Metering - Non-Residential	100%
---------------------------------------	------

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Score Contribution	This credit contributes 1.6% towards the category score.
Criteria	Have utility meters been provided for all individual commercial tenants?
Question	Criteria Achieved ?
Office	Yes
Shop	Yes
Public building	Yes

3.3 Metering - Common Areas		100%
------------------------------------	---	------

Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Have all major common area services been separately submetered?
Question	Criteria Achieved ?
Apartment	Yes
Office	Yes
Shop	Yes
Public building	Yes

4.1 Building Users Guide		100%
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Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Will a building users guide be produced and issued to occupants?
Question	Criteria Achieved ?
Project	Yes

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IWM Overall contribution 22.5%

		80% ✔ Pass
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Do you have a reticulated third pipe or an on-site water recycling system?:	No
Are you installing a swimming pool?:	Yes

Stormwater profile

Which stormwater modelling software are you using?:	Melbourne Water STORM tool
STORM score achieved:	103
Flow:	-
Total Suspended Solids:	-
Total Phosphorus:	-
Total Nitrogen:	-

Rainwater tank profile

What is the total roof area connected to the rainwater tank?:	
Rainwater Tank 1	518 m ²
Rainwater Tank 2	518 m ²
Dirty Water Tank	606 m ²
	-

Tank Size:

Rainwater Tank 1	15,000 Litres
Rainwater Tank 2	15,000 Litres
Dirty Water Tank	5,000 Litres

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Irrigation area connected to tank:

Rainwater Tank 1	0.0 m ²
Rainwater Tank 2	0.0 m ²
Dirty Water Tank	648 m ²
	-

Is connected irrigation area a water efficient garden?:

Rainwater Tank 1	No
Rainwater Tank 2	No
Dirty Water Tank	No
	-




Other external water demand connected to tank?:

Rainwater Tank 1	0.0 Litres/Day
Rainwater Tank 2	0.0 Litres/Day
Dirty Water Tank	0.0 Litres/Day
	-

Fixtures, fittings & connections profile

Building:	
Apartment 1	Apartments
Retail	Retails
Office	Commercial
Amenities	Amenities
Showerhead: All	4 Star WELS (>= 6.0 but <= 7.5)
Bath:	
Apartment 1	Default or unrated
Retail	Scope out
Office	
Amenities	
Kitchen Taps: All	>= 5 Star WELS rating
Bathroom Taps: All	>= 5 Star WELS rating
Dishwashers: All	>= 4 Star WELS rating
WC: All	>= 4 Star WELS rating
Urinals:	
Apartment 1	Scope out
Retail	>= 4 Star WELS rating
Office	
Amenities	
Washing Machine Water Efficiency:	
Apartment 1	>= 4 Star WELS rating
Retail	Scope out
Office	
Amenities	
Which non-potable water source is the dwelling/space connected to?: All	233263
Non-potable water source connected to Toilets: All	Yes
Non-potable water source connected to Laundry (washing machine): All	No
Non-potable water source connected to Hot Water System: All	No
1.1 Potable Water Use	40% ✔ Achieved

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Score Contribution	This credit contributes 33.3% towards the category score.	
Criteria	What is the reduction in total potable water use due to efficient fixtures, appliances, rainwater use and recycled water use? To achieve points in this credit there must be >25% potable water reduction.	
Output	Reference	
Project	5344 kL	
Output	Proposed (excluding rainwater and recycled water use)	
Project	4144 kL	
Output	Proposed (including rainwater and recycled water use)	
Project	4002 kL	
Output	% Reduction in Potable Water Consumption	
Project	25 %	
Output	% of connected demand met by rainwater	
Project	37 %	
Output	How often does the tank overflow?	
Project	Very Often	
Output	Opportunity for additional rainwater connection	
Project	1634 kL	
2.1 Stormwater Treatment		100% ✔ Achieved
Score Contribution	This credit contributes 60% towards the category score.	
Criteria	Has best practice stormwater management been demonstrated?	
Output	Min STORM Score	
Project	100	
Output	STORM Score	
Project	103	
3.1 Water Efficient Landscaping		N/A ✦ Scoped Out
Scope out		
This credit was scoped out	Scope out	
4.1 Building Systems Water Use		100%
Score Contribution	This credit contributes 6.7% towards the category score.	
Criteria	Where applicable, have measures been taken to reduce potable water consumption by >80% in the buildings air-conditioning chillers and when testing fire safety systems?	
Question	Criteria Achieved ?	
Project	Yes	

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Operational Energy Overall contribution 27.5%

		Minimum required 50%	50% ✔ Pass
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Project profile	
Use the BESS Deem to Satisfy (DtS) method for Non-residential spaces?:	Yes
Are you installing any renewable energy system(s) (other than solar photovoltaic)?:	Yes
Energy Supply:	All-electric
Solar Photovoltaic system profile	
System Size (lesser of inverter and panel capacity): Solar Photovoltaic system 1	22.0 kW peak
Orientation (which way is the system facing)?: Solar Photovoltaic system 1	North
Inclination (angle from horizontal): Solar Photovoltaic system 1	10.0 Angle (degrees)
Which Building Class does this apply to?: Solar Photovoltaic system 1	-
Dwellings profile	
Building:	Apartments
Below the floor is:	Ground or Carpark
Above the ceiling is:	Another Occupancy
Exposed sides:	2
NatHERS Annual Energy Loads - Heat:	55.0 MJ/sqm
NatHERS Annual Energy Loads - Cool:	30.0 MJ/sqm
NatHERS star rating:	7.0
Type of Heating System:	Reverse cycle space
Heating System Efficiency:	3.5 Stars (2019 MEPS)
Type of Cooling System:	Refrigerative space
Cooling System Efficiency:	4 Stars (2019 MEPS)
Type of Hot Water System:	Electric Heat Pump Band 1
Is the hot water system shared by multiple dwellings?:	Yes
% Contribution from solar hot water system:	0 %
Clothes Line:	No drying facilities
Clothes Dryer:	Occupant to install
Non-residential Deemed-to-Satisfy profile	
Do all exposed floors and ceilings (forming part of the envelope) demonstrate meeting the required NCC2022 insulation levels (total R-value upwards and downwards)?:	Yes
Does all wall and glazing demonstrate meeting the required NCC2022 facade calculator (or better than the total allowance)?:	Yes

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<p>Are heating and cooling systems within one Star of the most efficient equivalent capacity unit available, or Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available?:</p>		Yes
<p>Are water heating systems within one star of the best available, or 85% or better than the most efficient equivalent capacity unit?:</p>		Yes
<p>1.1 Thermal Performance Rating - Non-Residential</p>		37%
Score Contribution	This credit contributes 5.4% towards the category score.	
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC2022 Section J)?	
<p>1.2 Thermal Performance Rating - Residential</p>		0% ✔ Achieved
Score Contribution	This credit contributes 13% towards the category score.	
Criteria	What is the average NatHERS rating?	
Output	Average NATHERS Rating (Weighted)	
Apartment	7.0 Stars	
<p>2.1 Greenhouse Gas Emissions</p>		95%
Score Contribution	This credit contributes 15.3% towards the category score.	
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?	
Output	Reference Building with Reference Services (BCA only)	
Apartment	89,282 kg CO2	
Output	Proposed Building with Proposed Services (Actual Building)	
Apartment	72,372 kg CO2	
Output	% Reduction in GHG Emissions	
Apartment	18 %	
<p>2.2 Peak Demand</p>		100%
Score Contribution	This credit contributes 0.7% towards the category score.	
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?	
<p>2.6 Electrification</p>		0%
Score Contribution	This credit contributes 15% towards the category score.	
Criteria	Is the development all-electric?	
Question	Criteria Achieved?	
Project	No	
<p>2.7 Energy consumption</p>		100%

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Score Contribution	This credit contributes 21.3% towards the category score.
Criteria	What is the % reduction in annual energy consumption against the benchmark?
Output	Reference Building with Reference Services (BCA only)
Apartment	428,838 MJ
Output	Proposed Building with Proposed Services (Actual Building)
Apartment	329,797 MJ
Output	% Reduction in total energy
Apartment	23 %
3.1 Carpark Ventilation	0%
Score Contribution	This credit contributes 5.3% towards the category score.
Criteria	If you have an enclosed carpark, is it: (a) fully naturally ventilated (no mechanical ventilation system) or (b) 40 car spaces or less with Carbon Monoxide monitoring to control the operation and speed of the ventilation fans?
Question	Criteria Achieved ?
Project	No
3.2 Hot Water - Non-Residential	100%
Score Contribution	This credit contributes 0.7% towards the category score.
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?
3.4 Clothes Drying	0%
Score Contribution	This credit contributes 4.7% towards the category score.
Criteria	What is the % reduction in annual energy consumption (gas and electricity) from a combination of clothes lines and efficient driers against the benchmark?
Output	Reference
Apartment	907 kWh
Output	Proposed
Apartment	907 kWh
Output	Improvement
Apartment	0 %
3.6 Internal Lighting - Apartments	100%
Score Contribution	This credit contributes 4.7% towards the category score.
Criteria	Is the maximum illumination power density (W/m2) in at least 90% of the relevant building class at least 20% lower than required by clause J7D3(1)(a) and Table J6.2a of the NCC 2022 Vol 1 (Class 2-9)?
Question	Criteria Achieved ?
Apartment	Yes
3.7 Internal Lighting - Non-Residential	100%

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Score Contribution	This credit contributes 1.4% towards the category score.	
Criteria	Does the maximum illumination power density (W/m2) in at least 90% of the area of the relevant building class meet the requirements in Table J7D3a of the NCC 2022 Vol 1?	
Question	Criteria Achieved ?	
Office	Yes	
Shop	Yes	
Public building	Yes	
4.1 Combined Heat and Power (cogeneration / trigeneration)		N/A Scoped Out
No cogeneration or trigeneration system in use.		
This credit was scoped out	No cogeneration or trigeneration system in use.	
4.2 Renewable Energy Systems - Solar		100%
Score Contribution	This credit contributes 5.3% towards the category score.	
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?	
Output	Solar Power - Energy Generation per year	
Apartment	26,660 kWh	
Office	26,660 kWh	
Shop	26,660 kWh	
Public building	26,660 kWh	
Output	% of Building's Energy	
Apartment	29 %	
Office	375 %	
Shop	26 %	
Public building	91 %	
4.4 Renewable Energy Systems - Other		0%
Score Contribution	This credit contributes 5.3% towards the category score.	
Criteria	Does another form of renewable energy (not solar) provide 5% of the estimated energy consumption of the building class it supplies?	
Question	Other Renewable Energy - Energy Generation per year	
Apartment	-	
Office	-	
Shop	-	
Public building	-	

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IEQ Overall contribution 16.5%

		Minimum required 50%	62% ✔ Pass
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Use the BESS Deemed to Satisfy (DtS) method for daylight to Dwellings?:	No
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What approach do you want to use for daylight to Dwellings?:	Use the built in calculation tools
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Rooms

Room Designation:

Living Rooms	Living
Living Rooms (failing separation distance)	
Living Rooms (failing separation distance)	
Bedrooms	Bedroom
Bedrooms (failing separation distance)	

Quantity:

Living Rooms	122
Living Rooms (failing separation distance)	3
Bedrooms	236
Living Rooms (failing separation distance)	30
Bedrooms (failing separation distance)	59

Auto-Pass:

Living Rooms	Yes
Bedrooms	
Living Rooms (failing separation distance)	No
Living Rooms (failing separation distance)	
Bedrooms (failing separation distance)	

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Room Floor Area:

Living Rooms	0.0 m ²
Bedrooms	
Living Rooms (failing separation distance)	21.0 m ²
Living Rooms (failing separation distance)	
Bedrooms (failing separation distance)	10.0 m ²

Vertical Angle:

Living Rooms	0.0 Angle (degrees)
Bedrooms	
Living Rooms (failing separation distance)	40.0 Angle (degrees)
Living Rooms (failing separation distance)	
Bedrooms (failing separation distance)	

Horizontal Angle:

Living Rooms	0.0 Angle (degrees)
Bedrooms	
Living Rooms (failing separation distance)	100 Angle (degrees)
Living Rooms (failing separation distance)	
Bedrooms (failing separation distance)	80.0 Angle (degrees)

Window Area:	
Living Rooms	0.0 m ²
Bedrooms	
Living Rooms (failing separation distance)	10.0 m ²
Living Rooms (failing separation distance)	3.0 m ²
Bedrooms (failing separation distance)	2.0 m ²
Window Orientation:	
Living Rooms	-
Bedrooms	
Living Rooms (failing separation distance)	East
Living Rooms (failing separation distance)	
Bedrooms (failing separation distance)	North
Glass Type:	
Living Rooms	-
Bedrooms	
Living Rooms (failing separation distance)	Green Double (VLT 0.58)
Living Rooms (failing separation distance)	Grey Double (VLT 0.32)
Bedrooms (failing separation distance)	
Daylight Criteria Achieved?:	
Living Rooms	Yes
Living Rooms (failing separation distance)	
Bedrooms	
Living Rooms (failing separation distance)	No
Bedrooms (failing separation distance)	
ADVERTISED PLAN	
1.1 Daylight Access - Living Areas	66%
Score Contribution	This credit contributes 24% towards the category score.
Criteria	What % of living areas achieve the daylight criteria?
Output	Calculated percentage
Apartment	80 %
1.2 Daylight Access - Bedrooms	66%
Score Contribution	This credit contributes 24% towards the category score.
Criteria	What % of bedrooms achieve the daylight criteria?
Output	Calculated percentage
Apartment	80 %
1.3 Winter Sunlight	100%
Score Contribution	This credit contributes 8% towards the category score.
Criteria	Do 70% of dwellings receive at least 3 hours of direct sunlight in all Living areas between 9am and 3pm in mid-winter?
Question	Criteria Achieved ?
Apartment	Yes
1.4 Daylight Access - Non-Residential	40% ✔ Achieved

Score Contribution	This credit contributes 7% towards the category score.
Criteria	What % of the nominated floor area has at least 2% daylight factor?
Question	Percentage Achieved?
Office	28 %
Shop	32 %
Public building	100 %

2.1 Ventilation - Natural - Apartments		66%
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Score Contribution	This credit contributes 24% towards the category score.
Criteria	What % of dwellings are effectively naturally ventilated?
Question	Percentage Achieved?
Apartment	60 %

2.3 Ventilation - Non-Residential		33% ✔ Achieved
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Score Contribution	This credit contributes 7% towards the category score.
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Criteria	What % of the regular use areas are effectively naturally ventilated?
Question	Percentage Achieved?
Office	-
Shop	-
Public building	-

Criteria	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668.2:2012?
Question	Percentage Achieved?
Office	50 %
Shop	50 %
Public building	50 %

Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?
Question	Value
Office	-
Shop	-
Public building	-

3.4 Thermal comfort - Shading - Non-Residential		0%
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Score Contribution	This credit contributes 3.5% towards the category score.
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Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?
Question	Percentage Achieved?
Office	-
Shop	-
Public building	-

3.5 Thermal Comfort - Ceiling Fans - Non-Residential	0%
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Score Contribution	This credit contributes 1.2% towards the category score.
Criteria	What percentage of regular use areas in tenancies have ceiling fans?
Question	Percentage Achieved?
Office	-
Shop	-
Public building	-

4.1 Air Quality - Non-Residential	100%
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Score Contribution	This credit contributes 1.2% towards the category score.
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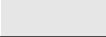


Criteria	Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Shop	Yes
Public building	Yes

Criteria	Does all carpet meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Shop	No carpet
Public building	Yes

Criteria	Does all engineered wood meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Shop	Yes
Public building	Yes

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Transport Overall contribution 9.0%

		89%
1.1 Bicycle Parking - Residential		
		100%
Score Contribution	This credit contributes 21.5% towards the category score.	
Criteria	How many secure and undercover bicycle spaces are there for residents?	
Question	Bicycle Spaces Provided ?	
Apartment	2	
Output	Min Bicycle Spaces Required	
Apartment	1	
1.2 Bicycle Parking - Residential Visitor		
		N/A  Scoped Out
Not enough dwellings.		
This credit was scoped out		Not enough dwellings.
1.3 Bicycle Parking - Convenience Residential		
		0%
Score Contribution	This credit contributes 10.7% towards the category score.	
Criteria	Are bike parking facilities for residents located at ground or entry level?	
Question	Criteria Achieved ?	
Apartment	No	
1.4 Bicycle Parking - Non-Residential		
		100%
Score Contribution	This credit contributes 3.1% towards the category score.	
Criteria	Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50% (or a minimum of 2 where there is no planning scheme requirement)?	
Question	Criteria Achieved ?	
Office	Yes	
Shop	Yes	
Public building	Yes	
Question	Bicycle Spaces Provided ?	
Office	1	
Shop	3	
Public building	1	
1.5 Bicycle Parking - Non-Residential Visitor		
		100%

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Score Contribution	This credit contributes 1.6% towards the category score.
Criteria	Have the planning scheme requirements for visitor bicycle parking been exceeded by at least 50% (or a minimum of 1 where there is no planning scheme requirement)?
Question	Criteria Achieved ?
Office	Yes
Shop	Yes
Public building	Yes
Question	Bicycle Spaces Provided ?
Office	1
Shop	1
Public building	1

1.6 End of Trip Facilities - Non-Residential	100%
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Score Contribution	This credit contributes 1.6% towards the category score.
Criteria	Where adequate bicycle parking has been provided. Is there also: * 1 shower for the first 5 employee bicycle spaces plus 1 to each 10 employee bicycles spaces thereafter, * changing facilities adjacent to showers, and * one secure locker per employee bicycle space in the vicinity of the changing / shower facilities?
Question	Number of showers provided ?
Office	1
Shop	1
Public building	1
Question	Number of lockers provided ?
Office	1
Shop	3
Public building	1
Output	Min Showers Required
Office	1
Shop	1
Public building	1
Output	Min Lockers Required
Office	1
Shop	3
Public building	1

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2.1 Electric Vehicle Infrastructure	100%
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Score Contribution	This credit contributes 24.6% towards the category score.
Criteria	Are facilities provided for the charging of electric vehicles?
Question	Criteria Achieved ?
Project	Yes


2.2 Car Share Scheme	100%
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Score Contribution	This credit contributes 12.3% towards the category score.
Criteria	Has a formal car sharing scheme been integrated into the development?
Question	Criteria Achieved ?
Project	Yes

2.3 Motorbikes / Mopeds		100%
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Score Contribution	This credit contributes 24.6% towards the category score.
Criteria	Are a minimum of 5% of vehicle parking spaces designed and labelled for motorbikes (must be at least 5 motorbike spaces)?
Question	Criteria Achieved ?
Project	Yes

Waste & Resource Recovery Overall contribution 5.5%

	66%
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1.1 Construction Waste - Building Re-Use		0%
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Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?
Question	Criteria Achieved ?
Project	No

2.1 Operational Waste - Food & Garden Waste		100%
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Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	Yes

2.2 Operational Waste - Convenience of Recycling		100%
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Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are the recycling facilities at least as convenient for occupants as facilities for general waste?
Question	Criteria Achieved ?
Project	Yes

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Urban Ecology Overall contribution 5.5%

		88%
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1.1 Communal Spaces		100%
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Score Contribution	This credit contributes 11.3% towards the category score.	
Criteria	Is there at least the following amount of common space measured in square meters : * 1m ² for each of the first 50 occupants * Additional 0.5m ² for each occupant between 51 and 250 * Additional 0.25m ² for each occupant above 251?	
Question	Common space provided	
Apartment	597 m ²	
Office	31.0 m ²	
Shop	100 m ²	
Public building	64.0 m ²	
Output	Minimum Common Space Required	
Apartment	5 m ²	
Office	18 m ²	
Shop	70 m ²	
Public building	64 m ²	

2.1 Vegetation		75%
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Score Contribution	This credit contributes 45.1% towards the category score.	
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area?	
Question	Percentage Achieved?	
Project	20 %	

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2.2 Green Roofs		100%
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Score Contribution	This credit contributes 11.3% towards the category score.	
Criteria	Does the development incorporate a green roof?	
Question	Criteria Achieved ?	
Project	Yes	

2.3 Green Walls and Facades		100%
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Score Contribution	This credit contributes 11.3% towards the category score.	
Criteria	Does the development incorporate a green wall or green façade?	
Question	Criteria Achieved ?	
Project	Yes	

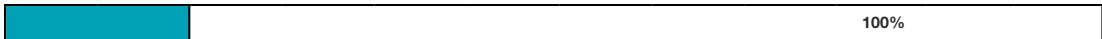
2.4 Balconies, Courtyards & Roof terraces		100%
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Score Contribution	This credit contributes 9.8% towards the category score.	
Criteria	Is there a tap and floor waste on every balcony and courtyard (including any roof terraces)?	
Question	Criteria Achieved ?	
Apartment	Yes	

3.1 Food Production - Residential		100%
Score Contribution	This credit contributes 9.8% towards the category score.	
Criteria	What area of space per resident is dedicated to food production?	
Question	Food Production Area	
Apartment	2.0 m ²	
Output	Min Food Production Area	
Apartment	2 m ²	
3.2 Food Production - Non-Residential		100%
Score Contribution	This credit contributes 1.4% towards the category score.	
Criteria	What area of space per occupant is dedicated to food production?	
Question	Food Production Area	
Office	5.0 m ²	
Shop	23.0 m ²	
Public building	20.0 m ²	
Output	Min Food Production Area	
Office	5 m ²	
Shop	23 m ²	
Public building	20 m ²	

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Innovation Overall contribution 9.0%



100%

Project Initiatives

Initiative:

Bicycle Repair Station	8
Acoustic Comfort	0
Construction waste	0
Worm Farm	0
Environmental performance targets	0
Urban Heat Island Effect	0
Heat Recovery Ventilation	6
Energy Management System	0
Climate Change Pre-screening Checklist	0

Description:

Bicycle Repair Station	Inclusion of secure, convenient and accessible equipment including repair stands, pumps and tools for fixing bicycles.
Acoustic Comfort	Noise level maintained
Construction waste	90% of construction waste to be diverted from landfill
Worm Farm	Project includes a worm farm to help compost food waste.
Environmental performance targets	Project has setup environmental performance targets for the common areas to monitor during building operations.
Urban Heat Island Effect	Reducing urban heat island effect by specifying exposed roof surfaces with high SRI finishes (excluding roads, solar PV and plant areas)
Heat Recovery Ventilation	Inclusion of Heat Recovery Ventilation Systems.
Energy Management System	Energy Management System
Climate Change Pre-screening Checklist	The project team will complete the climate change pre-screening checklist. The project team will communicate the building's exposure to climate change risks and provide appropriate measures to de-risk the project.

Points Targeted:

Bicycle Repair Station	-
Acoustic Comfort	1
Construction waste	2
Worm Farm	1
Environmental performance targets	1
Urban Heat Island Effect	1
Heat Recovery Ventilation	-
Energy Management System	1
Climate Change Pre-screening Checklist	1

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Points:	
Bicycle Repair Station	1
Acoustic Comfort	-
Construction waste	-
Worm Farm	-
Environmental performance targets	-
Urban Heat Island Effect	-
Heat Recovery Ventilation	1
Energy Management System	-
Climate Change Pre-screening Checklist	-
1.1 Innovation	100%
Score Contribution	This credit contributes 100% towards the category score.
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?

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