IGS INTEGRATED GROUP SERVICES

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Sustainable Management Plan

464 St Kilda Rd,
Melbourne VIC 3004

Project No: 26003
Date: 01/05/2026

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Melbourne VIC 3000
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Document Control

Version	Date	Issue	Author		Reviewer	
00	01/08/2025	Issue for Review	[redacted]	GN	[redacted]	LH
01	05/09/2025	Issue for Submission		GN		LH
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03	01/05/2026	Issue for Submission – General Architectural Updates		GN		LH

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Executive Summary

The proposed mixed use residential development has been designed to align with City of Port Phillip's sustainable design objectives and comply with the energy efficiency requirements outlined in the National Construction Code (NCC 2022) Section J.

The ESD strategy for the proposed development has incorporated the use of both NCC 2022 Section J and BESS (Built Environment Sustainability Scorecard) to meet City of Port Phillip's sustainability policy requirements.

The development has achieved an overall score of above 50% of nine key BESS categories and demonstrate 'Best Practice' sustainable design.

Category	Contributes to overall Score	Project Category Score
Management	4.5%	62%
Integrated Water Management	9.0%	82%
Operational Energy	27.5%	65%
IEQ	16.5%	56%
Transport	9.0%	23%
Waste	5.5%	67%
Urban Ecology	5.5%	11%
Innovation	9%	0%
Total Rate	**100%**	**54%**

Based on the level of information available at this stage of the design process, the proposed development at 464 St Kilda Road, Melbourne demonstrates 'Best Practice' in ESD and meets the City of Port Phillip's sustainable design objectives.

1. Introduction

The Sustainable Management Plan (SMP) has been prepared to summarise the environmental objectives and initiatives incorporated into the design of the proposed development and demonstrates how these components incorporate environmentally sustainable design initiatives in accordance with the City of Port Phillip's Planning scheme requirements.

The ESD initiatives proposed for this development are based on:

- Architectural drawings dated 24/04/2026 by Cox Architecture;
- Discussions and correspondence with the project team.

The Site

The proposed 17-storey mixed use residential development is located at 464 St Kilda Road, Melbourne. The site is walking distance from tram stops and nearby parks including Bowen Crescent Reserve, South African Memorial Reserve and Fawkner Park.

Site Location

The development is located within the City of Port Phillip and consist of:

- Basement 02-01: Car parks and Services;
- Ground Level: Residential Apartments, Lobby, Services and F&B Area;
- Level 1 – Level 2: Residential Apartments and Amenities;
- Level 3 – Level 17: Residential Apartments; and
- Rooftop: Roof Plant.

2. Summary of key ESD Initiatives

The SMP provides a detailed sustainability assessment of the proposed development. It assesses all key sustainable design initiatives outlined in BESS sustainable design rating tool, demonstrates that a holistic ESD review has been undertaken during the project early design stage and sets up the environmental benchmarks with quantifiable and measurable performance indicators. These indicators will be achieved by the project as evidence demonstrating the development achieves 'Best Practice'.

2.1 Incorporation of Environmentally Sustainable Design Objectives

The proposed development aims to incorporate the following Environmentally Sustainable Design initiatives to comply with the City of Port Phillip Planning Scheme requirements.

2.2 Utilise Energy Efficiently and Sustainably

Mechanical Plant – For Residential dwellings, energy efficient air-conditioning system equivalent to 3-Star (2019 MEPS) energy rating is proposed.

Domestic Hot Water – Electric heat pump type domestic hot water system with COP of above 3.5 or equivalent will be proposed.

Energy Efficient Lighting – Lighting power density is designed to be more than 20% below NCC 2022 Section J6 lighting power density requirement.

2.3 Utilise Potable Water Use Efficiently and Sustainably

To minimise the amenity water consumption and discharge to the municipal sewerage system, water efficient fixtures with the WELS rating as summarised below are to be used for the development.

- Kitchen and Bathroom Taps - 5 Star WELS Rating
- Dishwasher - 5 Star WELS Rating (Residential and Non-Residential areas)
- WCs - 4 Star WELS Rating
- Showers – 4 Star WELS Rating (≤ 7.5 L/min)
- Washing Machines - 4 Star WELS Rating
- Urinals - 5 Star WELS Rating (Only F&B and Amenity areas)

Alternative Water Sources – 20kL rainwater tanks will be installed on-site for the toilet flushing (in F&B and communal areas) and landscaping irrigation.

Air cooled air-conditioning system is proposed for all facilities within the site and fire testing water is to be collected and reused to reduce potable water consumption.

2.4 Minimising Waste Going to Landfill

Construction Waste - the building contractor will be engaged to prepare a Waste Management Plan (WMP) which forms part of a Site Management Plan (SMP) and 80% (by mass) of all demolition & construction waste to be reused or recycled.

Operational Waste – A waste consultants has been engaged to implement the operational waste initiatives within the development to ensure the recycling facilities are as convenient for occupants as facilities for general waste.

3. BESS Sustainable Assessment

The Built Environment Sustainability Scorecard (BESS) assesses energy and water efficiency, thermal comfort, and overall environmental sustainability performance of the proposed development. It assesses the project against a standard design practice building in nine environmental categories and the percentage contribution of each category varies depending on the scale and typology of the development.

A score of 50% and higher equates to 'Best Practice' via BESS rating. In order to meet BESS 'Best Practice' requirement, the development is targeting an overall score of above 50% and exceed the pass rates on the following mandatory categories.

- Integrated Water Management;
- Operational Energy; and
- Indoor Environment Quality (IEQ)

The proposed development achieves an overall score of above 50% and equates to 'Best Practice' sustainable design. BESS assessment report is enclosed as Appendix A for details.

3.1 Management

Best practice for building management means that sustainability is integrated from concept design through the construction process. Good decisions made early will always deliver the maximum benefit for the lowest cost.

For that reason, the following credits in this category are being targeted and incorporated in the design:

- A preliminary facade assessment has been undertaken for commercial and communal spaces in accordance with NCC2022 Section J4D6
- A preliminary NatHERS thermal modelling has been carried out for the development;
- Provide individual utility meters for all individual dwellings;
- Provide separate sub-metering facilities for common area services for all utilities (electricity and water if applicable); and
- Produce a Building User's Guide in which operation and maintenance of rainwater tank and Solar PV panels to be emphasised and highlighted.

3.2 Integrated Water Management

Water will be used efficiently throughout the whole building development with inclusion of efficient fixtures and fittings, collection and reuse of rainwater for toilet flushing(in F&B and communal areas) and landscaping irrigation.

These water saving initiatives are proposed to ensure the efficient use of water and collection and re-use of stormwater and to minimise the associated water costs.

BESS rating tool is used to assess the overall development water efficiency and demonstrates the design potential to achieve an over 50% improvement compared to an identical size 'reference' project and meet the best practice sustainable design.

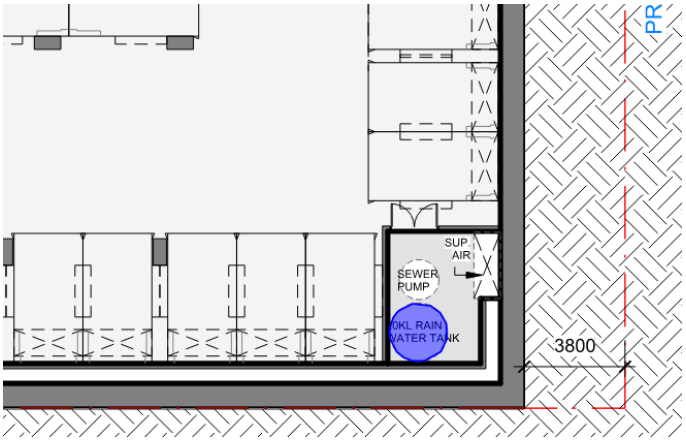
3.2.1 Water Efficient Fixtures

To minimise the amenity water consumption and discharge to the municipal sewerage system, water efficient fixtures are to be used for the development.

- Kitchen and Bathroom Taps - 5 Star WELS Rating
- Dishwasher - 5 Star WELS Rating
- WCs - 4 Star WELS Rating
- Showers – 4 Star WELS Rating (≤ 7.5 L/min)
- Washing Machines - 4 Star WELS Rating
- Urinals - 5 Star WELS Rating (Only F&B and Amenity areas)

3.2.2 Rainwater Harvesting

Rainwater will be harvested from the roof areas. A minimum of 20kL of rainwater tank will be installed on-site. Collected rainwater will be reused for landscape irrigation and toilet flushing(in F&B and communal areas), supporting sustainable water management across the development.



Location of Rainwater tank in Basement 02

3.2.3 Building Services Water Use Reduction

A temporary storage tank is proposed to collect and re-use at least 80% of the routine fire protection system test water on-site.

3.2.4 Stormwater

Stormwater quality is a significant issue as the high levels of impervious surfaces transport stormwater quickly into the drainage system along with sediment and pollutants.

The strategy for improving stormwater quality in the proposed development include:

- A minimum 20kL rainwater tank will be provided for rainwater collection and re-use for toilet flushing (in F&B and communal areas), and landscaping irrigation.
- A minimum of 15m^2 of Raingarden will be provided.

MUSIC modelling is undertaken to demonstrate that the best practice Environmental Management Guidelines (BPEMG) for Total Suspended Solids (TSS), Total Phosphorus (TP), Total Nitrogen (TN) and Gross Pollutants (GP) will be met. Refer to Appendix B – Stormwater Management Plan for more details.

3.2.5 Maintenance Program

The maintenance procedure shall be in conjunction with the building maintenance and specification and shall Comply with relevant / applicable authority design guidelines and codes of practice requirements. The stormwater management strategy shall adopt the following maintenance procedures.

- Quarterly routine maintenance procedure to thoroughly maintain raingarden free of debris and general clean-up process by building management as part of building maintenance programme.
- Annually / 6-month drain and flushing of rainwater tank cleaning tank internally from debris and sediment collection captured from roof surface, by building management as part of building maintenance programme.
- Quarterly inspection of gutters to ensure they are free of debris and clean as required.
- Quarterly inspection of stormwater downpipes and grates to ensure no water leakage, they are free of debris and clean as required.
- Yearly inspections of rainwater tanks and supports to ensure no leakage, inspect joints and clean as required.
- Water storage tanks should be inspected, cleaned and disinfected in accordance with AS 3500.
- Bi-annual inspection of pumps to ensure correct operation, no leakage and clean as required.
- Service items and equipment in conformance with the maintenance schedules as per the operation and maintenance manuals.

    - Carry out the manufacturers' recommended maintenance instruction.
    - Attend to reported defects and complaints.
    - Check for and repair corrosion.
    - Check for and rectify any unsafe conditions.
    - Replace faulty or damaged parts and consumable components.
    - connections, for deterioration and for freedom of movement of assembly.
    - Identification of pipes, conduits and ducts maintenance: To AS 1345.
    - Safety signs maintenance: To AS 1319.
    - Remove waste and clean all parts of the installation.
    - Remove temporary protective coatings, packaging and labels.
    - Clean screens and strainer baskets.

3.2.6 Construction Phase Stormwater Pollution Reduction

The Building Contractor must commit to implementing an Environmental Management Plan (EMP) that includes site management procedures to minimize stormwater pollution during the construction phase.

3.3 Operational Energy

The whole development will benchmark BESS Energy Efficiency as followings:

- **BESS Energy 1.1:** For non-residential spaces – 10% energy reduction from building services compared to the NCC 2022 Section J reference case;
- **BESS Energy 1.2:** For residential apartments – A preliminary NatHERS rating assessment has been undertaken and an average NatHERS rating of above 7.0-Star is targeted for all dwellings;
- **BESS Energy 2.6:** The development is proposed to be all electric;
- **BESS Energy 2.7:** The energy efficient building services are proposed for the whole development to reduce the electricity consumption by more than 20% compared to NCC 2022 Section J reference building;
- **BESS Energy 3.1:** The carpark spaces are proposed to install CO sensor to monitor and control the operation of the car park exhaust fan speed;
- **BESS Energy 3.6:** Maximum illumination power density (W/m2) in at least 90% of the Residential Apartments are at least 20% lower than required by clause J7D3(1)(a) and Table J6.2a of the NCC 2022 Vol 1 (Class 2-9) and
- **BESS Energy 3.7:** For Non-Residential portion, maximum illumination power density (W/m2) in at least 90% of the non-residential areas meet the requirements in Table J7D3a of the NCC 2022 Vol 1; and
- **BESS Energy 4.2:** Minimum 20kW Solar PV Panels are proposed to be on site.

3.3.1 Thermally Enhanced Building Envelope

The architectural and facade design will ensure the windows location, orientation and sizes are assessed
carefully to ensure excellent solar control and daylight transmission and the overall arrangement will provide the building with low façade loads allowing highly efficient energy systems to be used to maintain
occupant comfort.

Thermally enhanced building fabric is proposed in conjunction with the double-glazed windows for the whole development and achieve a minimum NatHERS rating of 6.0-Star and an average of 7.0-Star.

3.3.2 Energy Efficient System

For the proposed development, energy efficient HVAC, lighting and domestic hot water systems will be designed to minimize operational energy use and greenhouse gas emissions and reduce peak energy demand. The energy efficient system will include:

- Energy efficient air-conditioning system equivalent to 3-Star (2019 MEPS) energy rating is proposed;
- Electric heat pump type domestic hot water system with COP of above 3.5 or equivalent will be proposed; and
- Clothes Dryers are selected to be with minimum energy rating of 4-Star.

3.3.3 Car Park ventilation

The car park ventilation system will include variable speed drives (VSDs) on the fans and will be controlled by CO sensors to minimise unnecessary energy use.

3.3.4 Internal Lighting – Apartments

Maximum illumination power density (W/m2) in at least 90% of the residential apartments are proposed to be at least 20% lower than required by clause J7D3(1)(a) and Table J6.2a of the NCC 2022 Vol 1 (Class 2-9).

3.3.5 Internal Lighting – Non-Residential

Maximum illumination power density (W/m2) in at least 90% of the non-residential areas meet the requirements in Table J7D3a of the NCC 2022 Vol 1.

3.3.6 Renewable Energy

2 x 10kW Solar PV system will be proposed on the roof to generate renewable energy and supplied to the main switchboard. One 10kW Solar PV system will serve the commercial/shop areas, while the other 10kW system will be dedicated to offsetting the building's common area electrical load.

3.4 Indoor Environment Quality

The proposed development will improve the indoor environment quality and achieve a healthy indoor environment quality for the wellbeing of building occupants through adoption of the followings into the design.

3.4.1 Overall Daylight Access

The residential dwellings will aim for more than 80% of the total number of bedrooms achieve a daylight factor of at least 0.5% to 90% of the floor area, and more than 80% of the total number of living spaces achieve a daylight factor of at least 1% to 90% of the floor area.

For non-residential spaces, more than 40% of the nominated non-residential floor area will achieve a daylight factor of at least 2%.

3.4.2 Ventilation

For residential apartments, natural ventilation is introduced in the form of operable windows and doors and at least 60% of the apartments will achieve effective natural ventilation via cross ventilation, single sided ventilation or mechanically assisted natural ventilation (e.g. fresh air supply rates between 2.5-5 L/s) to meet BESS requirements.

For non-residential spaces, the mechanical ventilation systems will be designed to provide outdoor air levels to be at least 50% above AS 1668:2012 to the all the regularly occupied spaces with CO_2 sensors proposed for the development to maintain a maximum CO_2 concentration of 800ppm.

3.4.3 VOC and Formaldehyde Minimisation

- Low Volatile Organic Compound (VOC) paints, adhesive and sealant to be used in the development.

Product Type Category	Max TVOC Content (g/l of ready-to-use product)
General purpose adhesives	50
Design & As Built 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

- Low VOC Carpets to be used in the development.

Test protocol	Limit
ASTM D5116 – Total VOC limit	0.5mg/m²/h per hour

ASTM D5116 – 4 – PC (4-Phenylcyclohexene)	0.5mg/m²/h per hour
ISO 16000/EN 13419 – TVOC at three days	0.5mg/m²/h per hour
ISO 10580/ISO/TC 219 (Document N238) – TVOC at 24 hours	0.5mg/m²/h per hour

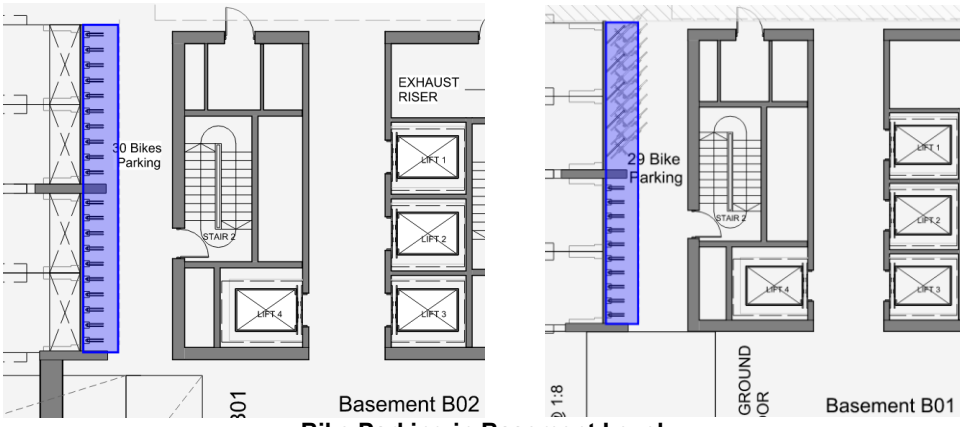
- Low formaldehyde wood products to be used in the development.

Test protocol	Emission limit/ Unit of Measurement
AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood	≤1.0mg/L
AS/NZS 1859.1:2004 – Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.5mg/L
AS/NZS 1859.2:2004 – MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.0mg/L
AS/NZS 4357.4 – Laminated Veneer Lumber (LVL)	≤1.0mg/L
Japanese Agricultural Standard MAFF Notification NO.701 Appendix Clause 3 (11) - LVL	≤1.0mg/L
JIS A 5908:2003 – Particle Board and Plywood, with use of testing procedure JISA 1460	≤1.0mg/L
JIS A 5905:2003 – MDF, with use of testing procedure JIS A 1460	≤1.0mg/L
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	≤0.1mg/m²hr
ASTM D5116 (applicable to high pressure laminated and compact laminates	≤0.1mg/m²hr
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	≤0.1mg/m²hr (at 3 days)
ASTM D6007	≤0.12mg/m³
ASTM E1333	≤0.12mg/m³
EN 717-1 (also known as DIN EN 717-1)	≤0.12mg/m³
EN 717-2 (also known as DIN EN 717-2)	≤3.5mg/m³hr

3.5 Transport

3.5.1 Bicycle Parking – Non-Residential

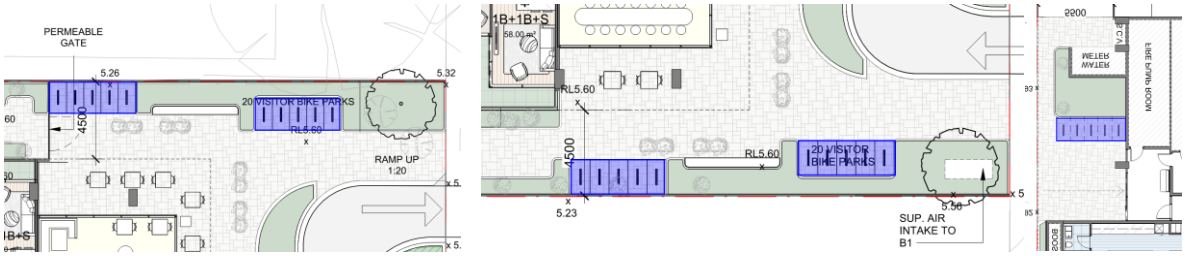
Bicycle parking for employees and/or building staff in commercial and communal areas will exceed the planning scheme requirements by at least 50% (or provide a minimum of 2 spaces if no requirement exists).



Bike Parking in Basement Level

3.5.2 Bicycle Parking – Non-Residential Visitor

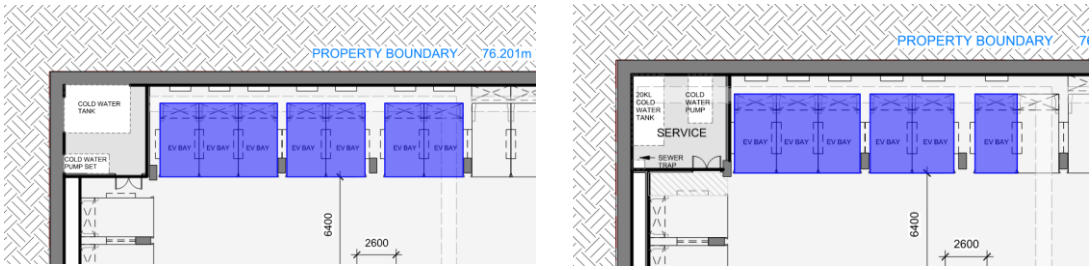
Bicycle parking for visitors to commercial and communal areas will exceed the planning scheme requirements by at least 50% (or provide a minimum of 2 spaces if no requirement exists).



Bike Parking in Ground Level

3.5.3 Electric Vehicle Infrastructure

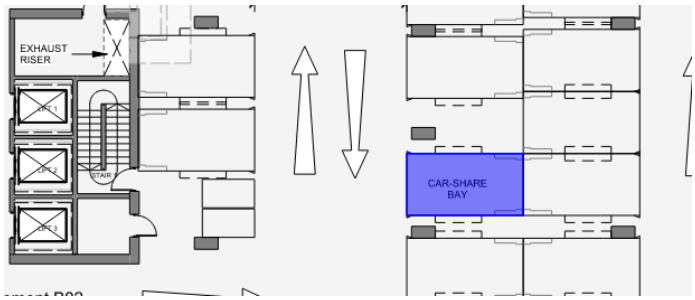
At least one parking space will be designated for EV charging, with appropriate signage and charging infrastructure installed.



EV Charging spaces in Basement 01 & 02

3.5.4 Car Share Scheme

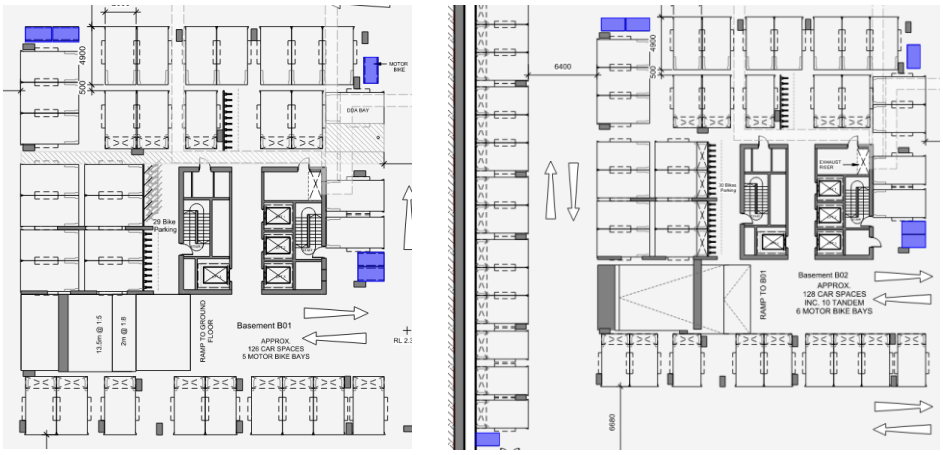
A dedicated car share parking bay is provided within Basement 02 to support a car share scheme.



Car Share Bay in Basement 02

3.5.5 Motorbike/Moped

A total of 11 motorbike parking spaces is provided across the development, including 5 spaces in Basement 01 and 6 spaces in Basement 02.



Motor Bike Bays in Basement 01 & 02

3.6 Waste & Resource Recovery

BESS rating tool has been used to assess the overall development waste collection and reuse and demonstrate the project has the design potential to achieve the best practice design for the Waste Management.

3.6.1 Construction Waste Management Plan

Building Contractor must provide Construction Site Management Plan prior to any construction work.

As part of the Construction Site Management Plan, a Construction Waste Management Plan must be prepared to encourage waste avoidance, reuse and recycling during the construction and at least 80% of construction and demolition waste are to be reused or recycled.

3.6.2 Operational Waste – Food & Garden Waste

The Food and garden organic (FOGO) materials will be collected privately.

3.6.3 Operational Waste – Convenience of Recycling

The recycling facilities are proposed as convenient for building users as facilities for general waste.

3.7 Urban Ecology

3.7.1 Communal Spaces

At least 558 m^2 of the common space are proposed for the building users, staff and employees within the development.

3.8 Building Materials

3.8.1 Concrete

Concretes with 20-35% (or greater) Supplementary Cementitious Materials (SCMs) such as slag or flyash or similar geopolymer mixes will be utilised for on-site on-ground poured concrete mixes, subject to structural requirements where feasible. Recycled aggregate, water and/or sand will be included in the concrete mixes.

3.8.2 Steel

Where possible and applicable, recycled steel will be used in the construction and will be sourced from an accredited environmentally responsible steel producer.

3.8.3 Timber

Sustainable timber products with third party certification through schemes such as Forest Stewardship Council (FSC) or Australian Forest Certification Scheme (AFSC), sourced as plantation timber. No rainforest timbers will be incorporated i.e. no Oregon, Western Red Cedar, Meranti, Merbau, Teak or Luan.

4. Overall BESS Scores Aiming to Target

With inclusion of all ESD initiatives summarised above, the proposed design is estimated to be able to achieve an overall score of above 50% of nine key BESS categories and demonstrating 'Best Practice' sustainable design.

Category	Contributes to overall Score	Project Category Score
Management	4.5%	62%
Integrated Water Management	9.0%	82%
Operational Energy	27.5%	65%
IEQ	16.5%	56%
Transport	9.0%	23%
Waste	5.5%	67%
Urban Ecology	5.5%	11%
Innovation	9%	0%
Total Rate	**100%**	**54%**

5. Conclusion

This SMP provides a summary of sustainable design features, which are integrated into the design of the proposed development at 464 St Kilda Rd, Melbourne to demonstrate 'Best Practice' in sustainable design to meet City of Port Phillip's objectives.

In terms of the building performance, the proposed development will be designed to include the followings:

- Thermally enhanced building fabrics to achieve an average NatHERS rating above 7.0 Stars for all dwellings;
- Energy-efficient air-conditioning system equivalent to 3-Star (2019 MEPS) rating for all dwellings;
- Electric heat pump type domestic hot water system with COP of above 3.5 or equivalent for the dwellings;
- 2 x 10kW-e roof mounted solar PV panels are proposed on the roof for the common area of the residential development and commercial areas;
- 20,000 litres rainwater harvesting system has been proposed on site for toilet flushing(in F&B and communal areas) and landscaping irrigation;
- Water efficient fixtures and fittings with minimum WELS ratings as specified;
- Improved stormwater quality via rainwater harvesting system and landscaping design;
- Introduce an elevated level of natural light into the primary residential spaces;
- At least one EV charging space with signage and charging infrastructure;
- A construction Waste Management Plan (WMP) to be prepared and implemented and a minimum 80% of all demolition and construction waste to be reused or recycled;
- Sustainable materials are to be proposed for the development;
- Meet Best Practice Sustainable Design using BESS rating tool; and
- Provision of a Building User's Guide for occupants to optimise the building's environmental performance.

Therefore, the proposed development has been designed to meet the City of Port Phillip's Planning Scheme requirements, and the project team will ensure the performance outcomes proposed in this Sustainable Management Plan be implemented prior to occupancy at no cost to the City of Port Phillip's and to the satisfaction of the Responsible Authority.

Appendix A – BESS Summary Report

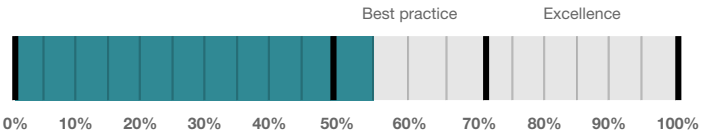
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 464 St Kilda Rd Melbourne Victoria 3004. 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 Port Phillip 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

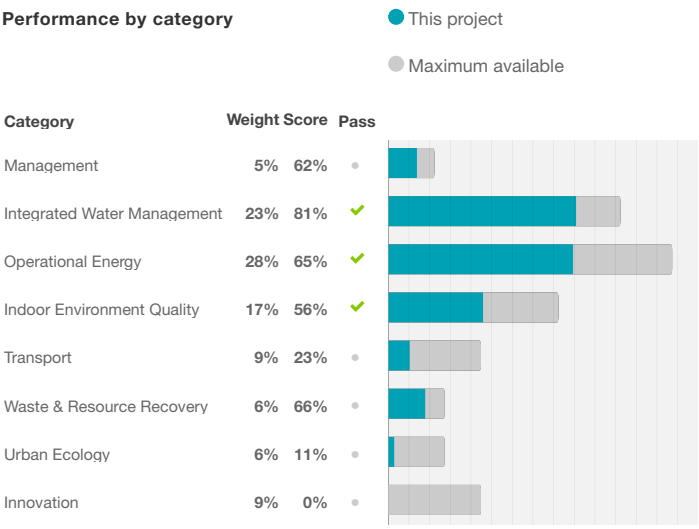


54%

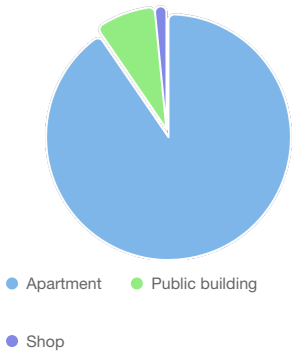
Project details

Name	464 St Kilda Road
Address	464 St Kilda Rd Melbourne Victoria 3004
Project ID	073AA6DA-R3
BESS Version	BESS-9
Date	01 May 2026
Software version	2.3.0-B.650
Site type	Mixed use development
Account	li.huan@igs.com.au
Application no.	
Site area	4,645 m²
Building floor area	31,401 m²

Performance by category



Project composition



Buildings

Name	Height	Footprint	% of total footprint
Building 1	18	3,260 m²	100%

Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	Building	% of total area
Apartment				
1-Bed Apartments	184	60.0 m²	Building 1	35%
3-Bed Apartments	66	130 m²	Building 1	27%
2-Bed Apartments	58	85.0 m²	Building 1	15%
4-Bed Apartments	24	160 m²	Building 1	12%
Total	**332**	**28,390 m²**	**90%**	

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Shop				
Food & Beverage	1	491 m²	Building 1	1%
Total	**1**	**491 m²**	**1%**	
Public building				
Amenity	1	2,520 m²	Building 1	8%
Total	**1**	**2,520 m²**	**8%**	

Supporting Evidence

Shown on Floor Plans

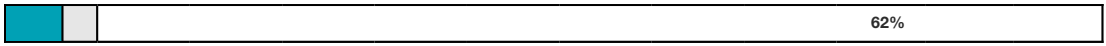
Credit	Requirement	Response	Status
Management 3.1	Annotation: Individual utility meters to be provided to all individual dwellings		-
Management 3.2	Annotation: Individual utility meters to be provided to all individual commercial tenancies		-
Management 3.3	Annotation: Sub-meters to be provided to all major common area services (list each)		-
Integrated Water Management 2.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
Integrated Water Management 3.1	Annotation: Water efficient garden details		-
Operational Energy 3.1	Carpark with natural ventilation or CO monitoring system		-
Operational Energy 3.4	Location of clothes line (if proposed)		-
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 2.1	Dwellings meeting the requirements for being 'naturally ventilated'		-
Transport 1.4	Location of non-residential bicycle parking spaces		-
Transport 1.5	Location of non-residential visitor bicycle parking spaces		-
Transport 2.1	Location of electric vehicle charging infrastructure		-
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		-

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 3.1	Details of either the fully natural carpark ventilation or CO monitoring system proposed		-
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 1.4	A short report detailing assumptions used and results achieved.		-
Indoor Environment Quality 2.1	A list of naturally ventilated dwellings		-

Credit summary

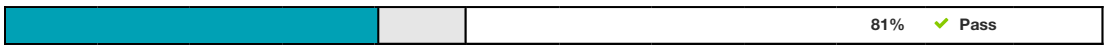
Management Overall contribution 4.5%



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%



81% ✔ **Pass**

1.1 Potable Water Use	40%	✔ Achieved
2.1 Stormwater Treatment	100%	✔ Achieved
3.1 Water Efficient Landscaping	100%	
4.1 Building Systems Water Use	100%	

Operational Energy Overall contribution 27.5%

Minimum required 50% **65%** ✔ **Pass**

1.1 Thermal Performance Rating - Non-Residential	25%	
1.2 Thermal Performance Rating - Residential	9%	✔ Achieved
2.1 Greenhouse Gas Emissions	61%	
2.2 Peak Demand	100%	
2.6 Electrification	100%	
2.7 Energy consumption	100%	
3.1 Carpark Ventilation	100%	
3.2 Hot Water - Non-Residential	100%	
3.4 Clothes Drying	55%	
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	9%	
4.4 Renewable Energy Systems - Other	0%	

IEQ Overall contribution 16.5%

Minimum required 50%	56%	✔ Pass
1.1 Daylight Access - Living Areas	66%	
1.2 Daylight Access - Bedrooms	66%	
1.3 Winter Sunlight	0%	
1.4 Daylight Access - Non-Residential	40%	✔ Achieved
2.1 Ventilation - Natural - Apartments	66%	
2.3 Ventilation - Non-Residential	50%	✔ 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%	

Transport Overall contribution 9.0%

	23%	
1.1 Bicycle Parking - Residential	0%	
1.2 Bicycle Parking - Residential Visitor	0%	
1.3 Bicycle Parking - Convenience Residential	0%	⊘ Disabled
	Credit 1.1 must be achieved first.	
1.4 Bicycle Parking - Non-Residential	100%	
1.5 Bicycle Parking - Non-Residential Visitor	100%	
1.6 End of Trip Facilities - Non-Residential	0%	
2.1 Electric Vehicle Infrastructure	100%	
2.2 Car Share Scheme	0%	
2.3 Motorbikes / Mopeds	0%	

Waste & Resource Recovery Overall contribution 5.5%

	66%	
1.1 Construction Waste - Building Re-Use	0%	
2.1 Operational Waste - Food & Garden Waste	100%	
2.2 Operational Waste - Convenience of Recycling	100%	

Urban Ecology Overall contribution 5.5%

	11%

1.1 Communal Spaces	100%
2.1 Vegetation	0%
2.2 Green Roofs	0%
2.3 Green Walls and Facades	0%
2.4 Balconies, Courtyards & Roof terraces	0%
3.1 Food Production - Residential	0%
3.2 Food Production - Non-Residential	0%

Innovation Overall contribution 9.0%

	0%

1.1 Innovation	0%

Credit breakdown

Management Overall contribution 4.5%

62%

1.1 Pre-Application Meeting	0%
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 22.6% 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 2.4% towards the category score.
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2022 Section J4D6?
Question	Criteria Achieved ?
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 ?
Shop	Yes
Public building	Yes
3.1 Metering - Residential	100%
Score Contribution	This credit contributes 11.3% 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%

Score Contribution	This credit contributes 1.2% towards the category score.
Criteria	Have utility meters been provided for all individual commercial tenants?
Question	Criteria Achieved ?
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
Shop	Yes
Public building	Yes

4.1 Building Users Guide	100%

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

IWM Overall contribution 22.5%

81% ✔ Pass

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?:	MUSIC or other modelling software
STORM score achieved:	100
Flow:	0 %
Total Suspended Solids:	80 %
Total Phosphorus:	45 %
Total Nitrogen:	45 %

Rainwater tank profile

What is the total roof area connected to the rainwater tank?:	
Rainwater Tank 1	1,800 m^2
	-
Tank Size:	
Rainwater Tank 1	20,000 Litres
	-
Irrigation area connected to tank:	
Rainwater Tank 1	400 m^2
	-
Is connected irrigation area a water efficient garden?:	
Rainwater Tank 1	Yes
	-
Other external water demand connected to tank?:	
Rainwater Tank 1	0.0 Litres/Day
	-

Fixtures, fittings & connections profile

Building: All	Building 1
Showerhead: All	4 Star WELS (>= 6.0 but <= 7.5)
Bath: All	Scope out
Kitchen Taps: All	>= 5 Star WELS rating
Bathroom Taps: All	>= 5 Star WELS rating
Dishwashers: All	>= 5 Star WELS rating
WC: All	>= 4 Star WELS rating
Urinals:	
1-Bed Apartments 2-Bed Apartments 3-Bed Apartments 4-Bed Apartments	Scope out
Food & Beverage Amenity	>= 5 Star WELS rating

Washing Machine Water Efficiency: All	>= 4 Star WELS rating
Which non-potable water source is the dwelling/space connected to?: All	232167
Non-potable water source connected to Toilets:	
1-Bed Apartments 2-Bed Apartments 3-Bed Apartments 4-Bed Apartments	No
Food & Beverage Amenity	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

Score Contribution	This credit contributes 31.2% 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	53869 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	40189 kL
Output	Proposed (including rainwater and recycled water use)
Project	40012 kL
Output	% Reduction in Potable Water Consumption
Project	25 %
Output	% of connected demand met by rainwater
Project	100 %
Output	How often does the tank overflow?
Project	Very Often
Output	Opportunity for additional rainwater connection
Project	22729 kL

2.1 Stormwater Treatment 100% ✔ Achieved

Score Contribution	This credit contributes 56.2% towards the category score.
Criteria	Has best practice stormwater management been demonstrated?
Output	Flow
Project	0 %
Output	Min Suspended Solids reduction
Project	80 %
Output	Total Suspended Solids reduction
Project	80 %
Output	Min Phosphorus reduction
Project	45 %
Output	Total Phosphorus reduction
Project	45 %
Output	Min Nitrogen reduction
Project	45 %
Output	Total Nitrogen reduction
Project	45 %

3.1 Water Efficient Landscaping	100%

Score Contribution	This credit contributes 6.2% towards the category score.
Criteria	Will water efficient landscaping be installed?
Question	Criteria Achieved ?
Project	Yes

4.1 Building Systems Water Use	100%

Score Contribution	This credit contributes 6.2% 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

Operational Energy Overall contribution 27.5%

		Minimum required 50%	65%	✔ Pass

Project profile	
Use the BESS Deem to Satisfy (DtS) method for Non-residential spaces?:	No
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 PV - Commercial	10.0 kW peak
Solar PV - Communal	10.0 kW peak
Orientation (which way is the system facing)?:	
Solar PV - Commercial	North
Solar PV - Communal	North
Inclination (angle from horizontal):	
Solar PV - Commercial	10.0 Angle (degrees)
Solar PV - Communal	10.0 Angle (degrees)
Which Building Class does this apply to?:	
Solar PV - Commercial	Shop
Solar PV - Communal	Public building
Dwellings profile	
Building: All	Building 1
Below the floor is: All	Another Occupancy
Above the ceiling is: All	Another Occupancy
Exposed sides: All	3
NatHERS Annual Energy Loads - Heat: All	60.2 MJ/sqm
NatHERS Annual Energy Loads - Cool: All	18.4 MJ/sqm
NatHERS star rating: All	7.1
Type of Heating System: All	Reverse cycle space
Heating System Efficiency: All	3 Stars (2019 MEPS)
Type of Cooling System: All	Refrigerative space
Cooling System Efficiency: All	3 Stars (2019 MEPS)
Type of Hot Water System: All	Electric Heat Pump Band 2
Is the hot water system shared by multiple dwellings?: All	Yes
% Contribution from solar hot water system: All	0 %
Clothes Line: All	No drying facilities
Clothes Dryer: All	Clothes dryer 4 stars
Non-residential buildings profile	
Heating, Cooling & Comfort Ventilation Electricity Reference fabric and Reference services:	50,000 kWh

Heating, Cooling & Comfort Ventilation **Electricity** **Proposed fabric and Reference services:**	47,500 kWh
Heating, Cooling & Comfort Ventilation **Electricity** **Proposed fabric and Proposed services:**	45,000 kWh
Heating **Wood** **Reference fabric and Reference services:**	0.0 MJ
Heating **Wood** **Proposed fabric and Reference services:**	0.0 MJ
Heating **Wood** **Proposed fabric and Proposed services:**	0.0 MJ
Hot Water **Electricity - Reference:**	10,000 kWh
Hot Water **Electricity - Proposed:**	9,000 kWh
Lighting **Electricity - Reference:**	20,000 kWh
Lighting **Electricity - Proposed:**	18,000 kWh
Peak Thermal Cooling Load **Reference:**	200 kW
Peak Thermal Cooling Load **Proposed:**	190 kW

1.1 Thermal Performance Rating - Non-Residential 25%

Score Contribution	This credit contributes 4.1% towards the category score.
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC2022 Section J)?
Output	Total Improvement
Shop	5 %
Public building	5 %

1.2 Thermal Performance Rating - Residential 9% ✔ Achieved

Score Contribution	This credit contributes 14.6% towards the category score.
Criteria	What is the average NatHERS rating?
Output	Average NATHERS Rating (Weighted)
Apartment	7.1 Stars

2.1 Greenhouse Gas Emissions 61%

Score Contribution	This credit contributes 15.6% 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	561,581 kg CO2
Shop	742 kg CO2
Public building	3,804 kg CO2
Output	Proposed Building with Proposed Services (Actual Building)
Apartment	495,318 kg CO2
Shop	667 kg CO2
Public building	3,424 kg CO2
Output	% Reduction in GHG Emissions
Apartment	11 %
Shop	10 %
Public building	10 %

2.2 Peak Demand 100%

Score Contribution	This credit contributes 0.5% towards the category score.
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?
Output	Peak Thermal Cooling Load - Baseline
Shop	3.1 kW
Public building	16.1 kW
Output	Peak Thermal Cooling Load - Proposed
Shop	3.0 kW
Public building	15.2 kW
Output	Peak Thermal Cooling Load - % Reduction
Shop	5 %
Public building	4 %

2.6 Electrification 100%

Score Contribution	This credit contributes 16.2% towards the category score.
Criteria	Is the development all-electric?
Question	Criteria Achieved?
Project	Yes

2.7 Energy consumption 100%

Score Contribution	This credit contributes 21.5% 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	5,350,988 MJ
Shop	3,380 MJ
Public building	17,334 MJ
Output	Proposed Building with Proposed Services (Actual Building)
Apartment	2,257,143 MJ
Shop	3,042 MJ
Public building	15,601 MJ
Output	% Reduction in total energy
Apartment	57 %
Shop	10 %
Public building	9 %

3.1 Carpark Ventilation 100%

Score Contribution	This credit contributes 5.4% 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	Yes

3.2 Hot Water - Non-Residential 100%

Score Contribution	This credit contributes 0.5% towards the category score.
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?
Output	Reference
Shop	563 MJ
Public building	2,889 MJ
Output	Proposed
Shop	507 MJ
Public building	2,600 MJ
Output	Improvement
Shop	9 %
Public building	10 %

3.4 Clothes Drying 55%

Score Contribution	This credit contributes 4.9% 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	137,683 kWh
Output	Proposed
Apartment	99,132 kWh
Output	Improvement
Apartment	27 %

3.6 Internal Lighting - Apartments 100%

Score Contribution	This credit contributes 4.9% 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%

Score Contribution	This credit contributes 1% 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 ?
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 9%

Score Contribution	This credit contributes 5.4% 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
Shop	12,118 kWh
Public building	12,118 kWh
Output	% of Building's Energy
Shop	1075 %
Public building	209 %

4.4 Renewable Energy Systems - Other 0%

Score Contribution	This credit contributes 5.4% 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	-
Shop	-
Public building	-

IEQ Overall contribution 16.5%

	Minimum required 50%	56%	✔ Pass

Use the BESS Deemed to Satisfy (DtS) method for daylight to Dwellings?:	No
What approach do you want to use for daylight to Dwellings?:	Provide our own calculations

1.1 Daylight Access - Living Areas	66%
Score Contribution	This credit contributes 25.4% towards the category score.
Criteria	What % of living areas achieve the daylight criteria?
Question	Percentage Achieved ?
Apartment	80 %

1.2 Daylight Access - Bedrooms	66%
Score Contribution	This credit contributes 25.4% towards the category score.
Criteria	What % of bedrooms achieve the daylight criteria?
Question	Percentage Achieved ?
Apartment	80 %

1.3 Winter Sunlight	0%
Score Contribution	This credit contributes 8.5% 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	No

1.4 Daylight Access - Non-Residential	40% ✔ Achieved
Score Contribution	This credit contributes 5.4% towards the category score.
Criteria	What % of the nominated floor area has at least 2% daylight factor?
Question	Percentage Achieved?
Shop	40 %
Public building	40 %

2.1 Ventilation - Natural - Apartments	66%
Score Contribution	This credit contributes 25.4% towards the category score.
Criteria	What % of dwellings are effectively naturally ventilated?
Question	Percentage Achieved?
Apartment	60 %

2.3 Ventilation - Non-Residential	50% ✔ Achieved
Score Contribution	This credit contributes 5.4% towards the category score.
Criteria	What % of the regular use areas are effectively naturally ventilated?
Question	Percentage Achieved?
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?
Shop	50 %
Public building	50 %

Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?
Question	Value
Shop	800 ppm
Public building	800 ppm

3.4 Thermal comfort - Shading - Non-Residential	0%

Score Contribution	This credit contributes 2.7% towards the category score.
Annotation	No east, north and west non-residential amenities are currently proposed to tower element

Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?
Question	Percentage Achieved?
Shop	0 %
Public building	0 %

3.5 Thermal Comfort - Ceiling Fans - Non-Residential	0%

Score Contribution	This credit contributes 0.9% towards the category score.
Criteria	What percentage of regular use areas in tenancies have ceiling fans?
Question	Percentage Achieved?
Shop	0 %
Public building	0 %

4.1 Air Quality - Non-Residential	100%

Score Contribution	This credit contributes 0.9% towards the category score.

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

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

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

Transport Overall contribution 9.0%

		23%

1.1 Bicycle Parking - Residential		0%
Score Contribution	This credit contributes 18.3% towards the category score.	
Criteria	How many secure and undercover bicycle spaces are there for residents?	
Question	Bicycle Spaces Provided ?	
Apartment	0	
1.2 Bicycle Parking - Residential Visitor		0%
Score Contribution	This credit contributes 18.3% towards the category score.	
Criteria	How many secure bicycle spaces are there for visitors?	
Question	Visitor Bicycle Spaces Provided ?	
Apartment	0	
1.3 Bicycle Parking - Convenience Residential		0% ⊘ Disabled
		Credit 1.1 must be achieved first.
This credit is disabled	Credit 1.1 must be achieved first.	
1.4 Bicycle Parking - Non-Residential		100%
Score Contribution	This credit contributes 1.9% 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 ?	
Shop	Yes	
Public building	Yes	
Question	Bicycle Spaces Provided ?	
Shop	2	
Public building	2	
1.5 Bicycle Parking - Non-Residential Visitor		100%
Score Contribution	This credit contributes 0% 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 ?	
Shop	Yes	
Public building	Yes	
Question	Bicycle Spaces Provided ?	
Shop	2	
Public building	1	
1.6 End of Trip Facilities - Non-Residential		0%

Score Contribution	This credit contributes 0% 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 ?
Shop	0
Public building	0
Question	Number of lockers provided ?
Shop	0
Public building	0
Output	Min Showers Required
Shop	1
Public building	1
Output	Min Lockers Required
Shop	2
Public building	2

2.1 Electric Vehicle Infrastructure 100%

Score Contribution	This credit contributes 20.2% towards the category score.
Criteria	Are facilities provided for the charging of electric vehicles?
Question	Criteria Achieved ?
Project	Yes

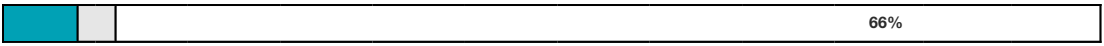
2.2 Car Share Scheme 0%

Score Contribution	This credit contributes 10.1% towards the category score.
Criteria	Has a formal car sharing scheme been integrated into the development?
Question	Criteria Achieved ?
Project	No

2.3 Motorbikes / Mopeds 0%

Score Contribution	This credit contributes 20.2% 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	No

Waste & Resource Recovery **Overall contribution 5.5%**



1.1 Construction Waste - Building Re-Use	0%
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%
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%
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

Urban Ecology Overall contribution 5.5%

		11%

1.1 Communal Spaces			100%
Score Contribution	This credit contributes 11.2% towards the category score.		
Criteria	Is there at least the following amount of common space measured in square meters : * 1m² for each of the first 50 occupants * Additional 0.5m² for each occupant between 51 and 250 * Additional 0.25m² for each occupant above 251?		
Question	Common space provided		
Apartment	309 m²		
Shop	49.0 m²		
Public building	200 m²		
Output	Minimum Common Space Required		
Apartment	309 m²		
Shop	49 m²		
Public building	200 m²		
2.1 Vegetation			0%
Score Contribution	This credit contributes 44.9% 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	0 %		
2.2 Green Roofs			0%
Score Contribution	This credit contributes 11.2% towards the category score.		
Criteria	Does the development incorporate a green roof?		
Question	Criteria Achieved ?		
Project	No		
2.3 Green Walls and Facades			0%
Score Contribution	This credit contributes 11.2% towards the category score.		
Criteria	Does the development incorporate a green wall or green façade?		
Question	Criteria Achieved ?		
Project	No		
2.4 Balconies, Courtyards & Roof terraces			0%
Score Contribution	This credit contributes 10.2% 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	No		
3.1 Food Production - Residential			0%

Score Contribution	This credit contributes 10.2% towards the category score.
Criteria	What area of space per resident is dedicated to food production?
Question	Food Production Area
Apartment	-
Output	Min Food Production Area
Apartment	172 m²

3.2 Food Production - Non-Residential	0%

Score Contribution	This credit contributes 1.1% towards the category score.
Criteria	What area of space per occupant is dedicated to food production?
Question	Food Production Area
Shop	-
Public building	-
Output	Min Food Production Area
Shop	13 m²
Public building	63 m²

Innovation Overall contribution 9.0%

	0%

1.1 Innovation	0%

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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Appendix A – Stormwater Management Plan

IGS INTEGRATED GROUP SERVICES

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Stormwater Management Plan

464 St Kilda Road
Melbourne VIC 3004

Date: 05/09/2025
Project No: 26003

Level 4, 108 Elizabeth Street,
Melbourne VIC 3000
Web: www.igs.com.au

Document Control

Version	Date	Issue	Author		Reviewer	
00	01/08/2025	Issue for Review	Gokul Nisha	GN	Li Huan	LH
01	05/09/2025	Issue for Submission	Gokul Nisha	GN	Li Huan	LH

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1 Executive Summary

Integrated Group Services (IGS) has been commissioned to prepare a Stormwater Management Plan (SWMP) for the proposed mixed use residential development located at 464 St Kilda Road, Melbourne.

The modelling results (see **Table 1**) indicate the Best Practice Environmental Management (BPEMG) stormwater pollutants reduction target 70%, 80%, 45% and 45% for Gross Pollutants (GP), Total Suspended Solids (TSS), Total Phosphorus (TP) and Total Nitrogen (TN) respectively can be achieved.

Pollutant	Sources	Residual Load	Reduction Achieved (%)	Reduction Target (%)
Flow (ML/yr)	2.455	1.879	23.4	0
Total Suspended Solids	274.4	47.39	82.6	80
Total Phosphorus	0.6686	0.2861	57.3	45
Total Nitrogen	5.973	3.006	49.5	45
Gross Pollutants	86.33	0	100	70

Table 1: Treatment Train Effectiveness

Stormwater management for the site is achieved using the following devices:

- One (1) x 20kL Rainwater Tank collecting Rainwater from non-trafficked roofs.
- One (1) x Raingarden(s) (15m² of area)

The development meets the water quality performance objectives as set out in the Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO) or as amended.

2 Overview

2.1 Introduction

This report has been prepared by Integrated Group Services (IGS) to form part of the Sustainable Management Plan for the proposed mixed use residential development located at 464 St Kilda Road, Melbourne. The site is located within the City of Port Philip.

Figure 1: Site Location

2.2 Site Layout

The proposed development is presented on **Figure 2**.

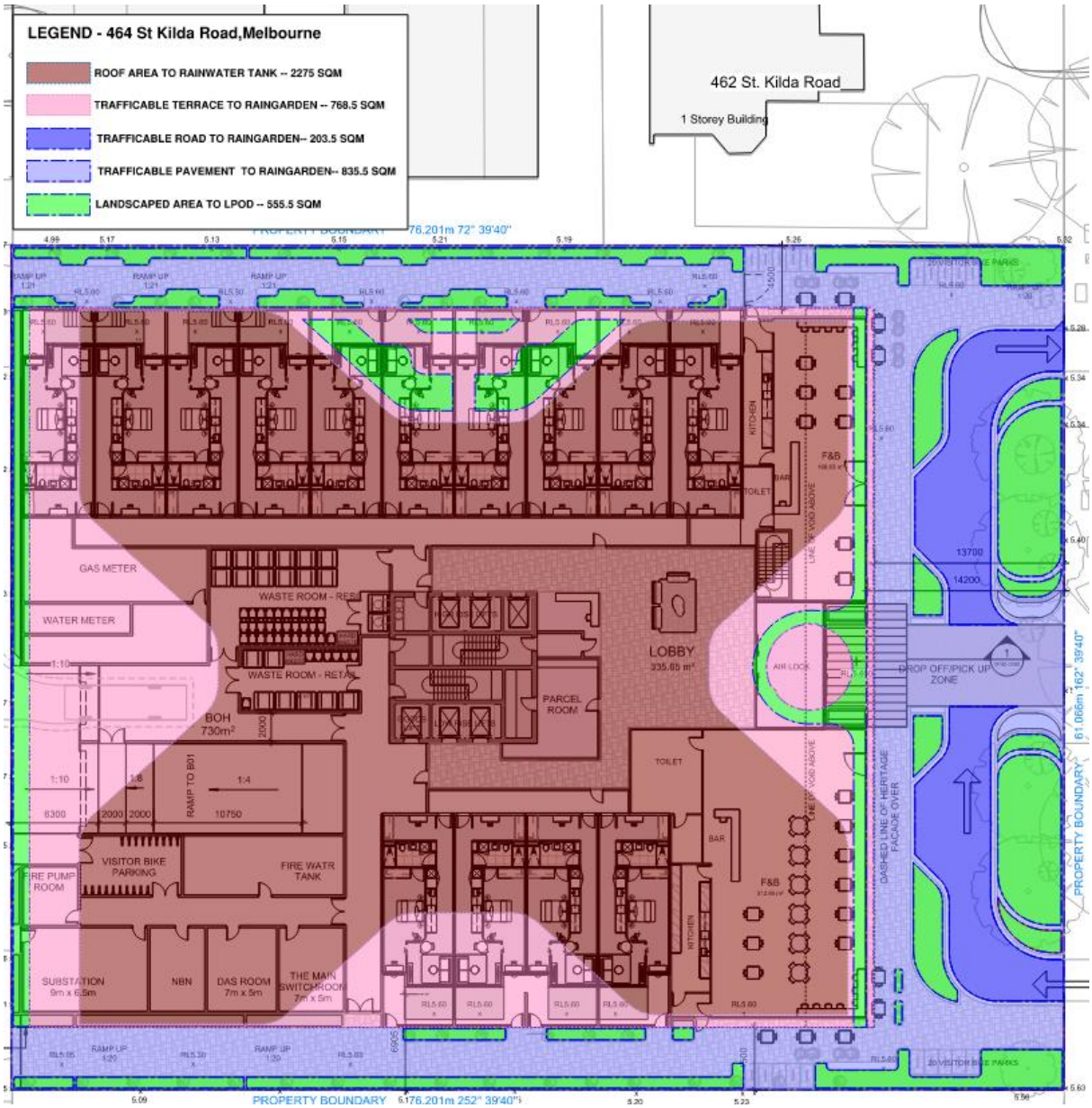

Figure 2: Proposed Site Layout

3 Stormwater Management – Operational Controls

3.1 Water Quality Objectives

Melbourne Water (2018) requires treatment of stormwater so that annual pollutant loads achieve targets set out in the Best Practice Environmental Management Guidelines (BPEMG). These are:

- 80% reduction in Total Suspended Solids (TSS) from typical urban loads.
- 45% reduction in Total Nitrogen (TN) from typical urban loads.
- 45% reduction in Total Phosphorus (TP) from typical urban loads; and
- 70% reduction in Gross Pollutants (GP) from typical urban loads.

3.2 Treatment Train

Based on the site characteristics and the range of available Stormwater Quality Improvement Devices (SQIDs), this study has developed an overall concept that will satisfy the requirements of downstream environmental protection. **Figure 3** shows a schematic representation of the proposed treatment train elements.

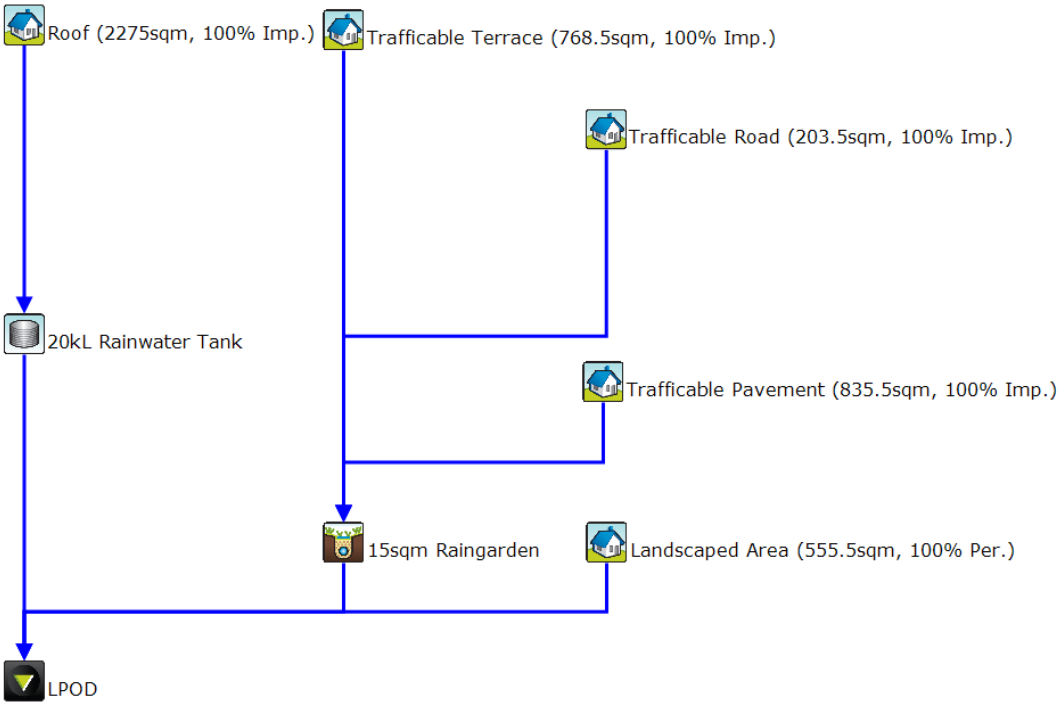

Figure 3: Treatment Train Schematic

3.3 Rainwater Tank

Rainwater tanks can reduce the harm to Stormwater waterways caused by too much stormwater. Tank water can be reused for toilet flushing, laundry washing, gardens and lawn irrigation and cars wash, this will significantly be reducing the potable / drinking cold water consumption. For this development, the rainwater collected will be used for toilet flushing (F&B and communal area) and for landscape irrigation.

Rainwater tanks collect stormwater run-off from impervious surfaces such as roofs, the tank will be fitted with an overflow outlet that in the event of tank full capacity the excessive pour down will be redirected or fall into the stormwater drainage system.

Rainwater tanks are generally used for watering gardens are much less efficient than tanks used for flushing toilets.

Advantages of rainwater tanks are that they:

- minimise water usage when used in the toilet, laundry or garden.
- reduce strain on the stormwater drainage system.
- retain water close to source.
- reduce site run-off and flood peaks.

To maximise the use of roof rainwater runoff it will be best to increase the tank capacity and ensure the design allows for maximum catchment. A rainwater harvesting system will be installed comprising:

- Rainwater harvesting from non-trafficked roofs and store within the 20kL rainwater tank for toilet flushing and for landscape irrigation.

3.4 Rain Gardens

Raingardens are specially designed garden beds that filter stormwater runoff from surrounding areas or stormwater pipes. Raingardens are also called bioretention systems because they use soil, plants, and microbes to biologically treat stormwater.

Although they may look similar to a normal garden, raingardens are designed to stop stormwater run-off from polluting stormwater waterways with nutrients, rubbish and other sediments, the system operates as follows.

- Water collects and settles on the garden surface.
- Water soaks through the plants and filter media, trapping rubbish and sediment on the surface.
- Plants use the nutrients in the stormwater, and toxins stick to the soil; and
- The soil and plant roots work together to naturally filter the water and remove pollutants.

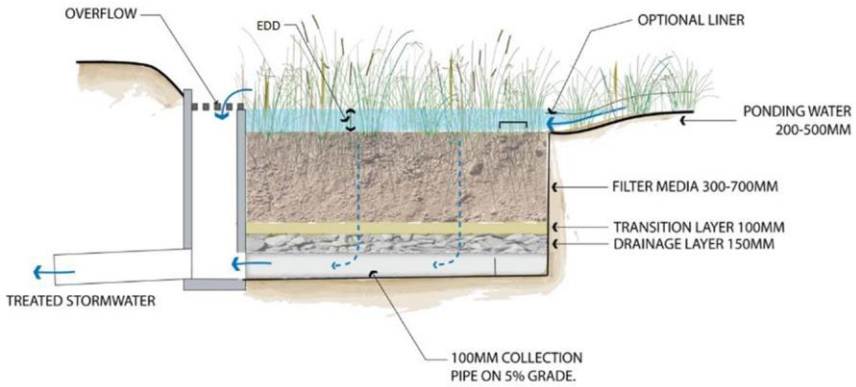

Figure 4: Typical Raingarden Section for illustration purpose

4 Stormwater Analysis – MUSIC

Storm Water modelling has been undertaken of the post-development (mitigated) scenario using the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) software to demonstrate the load-based reduction targets are achieved. A stormwater treatment train has been developed and modelled to determine the effectiveness of the proposed system in achieving the relevant storm water objectives.

4.1 Rainfall and Evapotranspiration Parameters

The meteorological and rainfall-runoff data used in the MUSIC model is summarized below.

Parameter	Value
Rainfall station	86071 – Melbourne Regional
Time step	6 minutes
Modelling period	January 1952 – December 1961
Mean annual rainfall	708 mm
Mean annual Evapo-Transpiration	995 mm

Table 3: Meteorological and Rainfall Runoff Data

4.2 Catchment Parameters

Based on the proposed land uses within the development, the subject site has been modelled as an urban source node. The rainfall-runoff parameters and pollutant generation parameters are based on parameters recommended by Melbourne Water **(2024) (Tables 4 and 5).**

Parameter	All Nodes
Rainfall threshold (mm)	1.0
Soil storage capacity (mm)	120
Initial storage (% capacity)	25
Field capacity (mm)	50
Infiltration capacity coefficient a	200
Infiltration capacity exponent b	1
Initial depth (mm)	10
Daily recharge rate (%)	25
Daily base flow rate (%)	5
Daily deep seepage rate (%)	0

Table 4: Rainfall Runoff Parameters

Catchment ID		Total Suspended Solids [log (mm/L)]		Total Phosphorous [log (mm/L)]		Total Nitrogen [log (mm/L)]	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Landscape	Storm Flow Concentration	1.882	0.333	-0.680	0.242	-0.224	0.205
	Base Flow Concentration	0.96	0.401	-0.731	0.360	-0.346	0.309
Hardstand	Storm Flow Concentration	2.431	0.333	-0.301	0.242	0.343	0.205
	Base Flow Concentration	0	0	0	0	0	0
Roof	Storm Flow Concentration	1.301	0.333	-0.886	0.242	0.301	0.205
	Base Flow Concentration	0	0	0	0	0	0

Table 5: Pollutant Export Parameters for Urban Sites

4.3 Stormwater Demand

Stormwater volume reduction is achieved through the reuse of harvested rainwater for toilet flushing in F&B and communal areas and landscape irrigation. The estimated daily water demand used for the MUSIC modelling is based on the following demand:

- **Total Reuse demand**: 2 kL/day

4.4 MUSIC Results

Results of the MUSIC modelling for the treatment train effectiveness are summarised in **Table 6**. The results indicate the 80%, 45%, 45% and 70% reduction target for TSS, TP, TN and Gross Pollutants respectively are achieved. A screen capture of the MUSIC modelling results is included as **Figure 5**.

Pollutant	Sources	Residual Load	Reduction Achieved (%)	Reduction Target (%)
Flow (ML/yr)	2.455	1.879	23.4	0
Total Suspended Solids	274.4	47.39	82.6	80
Total Phosphorus	0.6686	0.2861	57.3	45
Total Nitrogen	5.973	3.006	49.5	45
Gross Pollutants	86.33	0	100	70

Table 6: Treatment Train Effectiveness

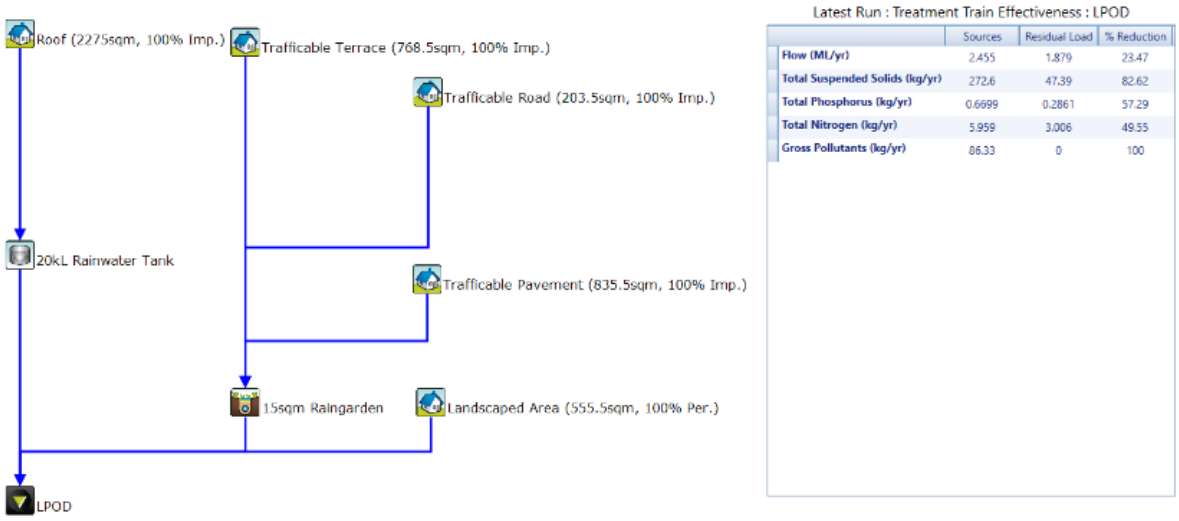

Figure 05: Treatment Train Music Model Screen Capture

5 Summary

Based on the water quality assessment using the MUSIC software, it is found that the pollutant reduction targets can be achieved by adopting the SQIDs as specified in **Table 7.**

Stormwater Quality Improvement Device	Quantity
Minimum RWT collection and reuse for toilet flushing (F&B and communal area) and landscaping irrigation (20kL)	1
Raingarden(s) (15m² of area)	1

Table 7: Recommended Stormwater Quality Improvement Devices

6 Recommendation

6.1 Stormwater Quality Improvement Device

6.1.1 Rainwater Tank

Rainwater tanks can reduce the harm to stormwater waterways caused by too much stormwater. Tank water can be reused for toilet flushing, laundry washing, gardens and lawn irrigation and car wash, this will significantly reduce the potable / drinking cold water consumption. For this project, the rainwater collected will be used for toilet flushing(F&B and communal area) and landscaping irrigation.

6.1.2 Rain Gardens

The recommended raingardens are designed to capture stormwater at the downstream end of the drainage network and treat the runoff prior to discharging into the local waterway. The pollutant reduction targets achieved (as modelled in MUSIC) are summarised in Table 8.

Pollutant	Sources	Residual Load	Reduction Achieved (%)	Reduction Target (%)
Flow (ML/yr)	2.455	1.879	23.4	0
Total Suspended Solids	274.4	47.39	82.6	80
Total Phosphorus	0.6686	0.2861	57.3	45
Total Nitrogen	5.973	3.006	49.5	45
Gross Pollutants	86.33	0	100	70

Table 8: MUSIC Modelling Results

7 Site Managements Plan During Construction

The stormwater management strategy will adopt the following procedures during construction:

- Ground water seepage shall be managed and treated prior to discharge to council's LPD by builder / contractor during construction. To protect drainage infrastructure and receiving waters from sedimentation and contamination.
- To protect the site and surrounding area from environmental degradation prior to and during construction of subdivision works.
- An application should describe how the site will be managed prior and during the construction period and may set out requirements for managing:

    - Erosion and sediment.
    - Stormwater.
    - Litter, concrete, and other construction wastes; and
    - Chemical contamination.

8 Maintenance

The maintenance procedure shall be in conjunction with the building maintenance and specification and shall Comply with relevant / applicable authority design guidelines and codes of practice requirements. The stormwater management strategy shall adopt the following maintenance procedures.

- Quarterly routine maintenance procedure to thoroughly maintain raingarden free of debris and general clean-up process by building management as part of building maintenance programme.
- Annually / 6-month drain and flushing of rainwater tank cleaning tank internally from debris and sediment collection captured from roof surface, by building management as part of building maintenance programme.
- Quarterly inspection of gutters to ensure they are free of debris and clean as required.
- Quarterly inspection of stormwater downpipes and grates to ensure no water leakage, they are free of debris and clean as required.
- Yearly inspections of rainwater tanks and supports to ensure no leakage, inspect joints, and clean as required.
- Water storage tanks should be inspected, cleaned, and disinfected in accordance with AS 3500.
- Bi-annual inspection of pumps to ensure correct operation, no leakage and clean as required.
- Service items and equipment in conformance with the maintenance schedules as per the operation and maintenance manuals.

    - Carry out the manufacturers' recommended maintenance instruction.
    - Attend to reported defects and complaints.
    - Check for and repair corrosion.
    - Check for and rectify any unsafe conditions.
    - Replace faulty or damaged parts and consumable components.
    - connections, for deterioration and for freedom of movement of assembly.
    - Identification of pipes, conduits, and ducts maintenance: To AS 1345.
    - Safety signs maintenance: To AS 1319.
    - Remove waste and clean all parts of the installation.
    - Remove temporary protective coatings, packaging, and labels.
    - Clean screens and strainer baskets.

9 References

The report has used the following references:

- Melbourne Water (2024) MUSIC Guidelines – Input Parameters and Modelling approaches for MUSIC user in Melbourne Water's services area 2024.
- Urban Stormwater Best Practice Environmental Management Guidelines.

Appendix C – Daylight Modelling Report

IGS INTEGRATED GROUP SERVICES

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DAYLIGHT ACCESS MODELLING REPORT

464 St Kilda Road
Melbourne VIC 3004

Date: 05/09/2025
Project No: 26003

Level 4, 108 Elizabeth Street
Melbourne VIC 3000
Web: www.igs.com.au

Document Control

Version	Date	Issue	Author		Reviewer	
00	05/09/2025	Issue for Submission	Gokul Nisha	GN	Li Huan	LH

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1. Executive Summary

IGS was engaged to undertake a daylight simulation on the residential development at 464 St Kilda Road, Melbourne to identify the BESS Indoor Environment Quality (IEQ) Daylight Access to the residential dwellings.

The 464 St Kilda Road development retains the heritage façade from the Ground Floor to Level 2 (podium levels), maintaining its architectural and cultural significance. Rising above, a newly proposed tower extends from Level 3 to Level 11.

The daylight availability simulation has been undertaken above the finished floor level for residential dwellings and 700mm above floor level for the ground floor retail space under the Uniform Cloudy Sky. A Uniform Cloudy Sky represents a sky with a constant value of luminance. The values are derived from a statistical analysis of outdoor illuminance levels. They represent a horizontal illuminance level that exceeds 85% of the time between the hours of 9am and 5pm throughout the year. They also represent that the building has been designed to meet the modelled daylight levels for at least 85% of the daytime annually.

BESS IEQ category requires minimum 80% of the total number of living rooms to achieve a daylight factor greater than 1% to 90% of the floor area in each room; and minimum 80% of the total number of bedrooms to achieve a daylight factor greater than 0.5% to 90% of the floor area in each room to meet minimum BESS requirements for daylight availability.

The daylight modelling results indicate that for the newly proposed tower section of the development, more than 80% of living rooms achieve a daylight factor of at least 1% across 90% of the floor area, and more than 80% of bedrooms achieve a daylight factor of at least 0.5% across 90% of the floor area, meeting the BESS daylight requirements.

While the retained heritage façade from Ground Floor to Level 2 constrains daylight access, the design has been carefully developed to maximise available daylight within the character and limitations of the existing structure.

Overall, the results indicate that the tower section of the development has met the BESS IEQ daylight access requirements.

2. Introduction

2.1 Key Assumptions

The proposed external windows visible light transmissions (VLTs) are recommended to be:

- All External Windows and Glazed Doors: VLT ≥ 60%

Finishes Reflectance Values

The following default reflectance values are used for the building finishes daylight availability modelling.

- Floor covering reflectance = 0.5
- Walls and Internal Partitions reflectance = 0.9
- Ceiling reflectance = 0.9
- Surrounding Buildings reflectance = 0.4

2.2 Sky Model

The Uniform Cloudy Sky of horizontal external illuminance of 10,000 Lux is used for daylight availability simulation. A Uniform Cloudy Sky represents a sky with a constant value of luminance. The values are derived from a statistical analysis of outdoor illuminance levels. They represent a horizontal illuminance level that exceeds 85% of the time between the hours of 9am and 5pm throughout the year. Thus, they also represent that the building has been designed to meet the modelled daylight levels for at least 85% of the daytime annually.

2.3 Building Shape

The building physical shape is modelled in accordance with the work in progress architectural drawings package dated 26/08/2025.

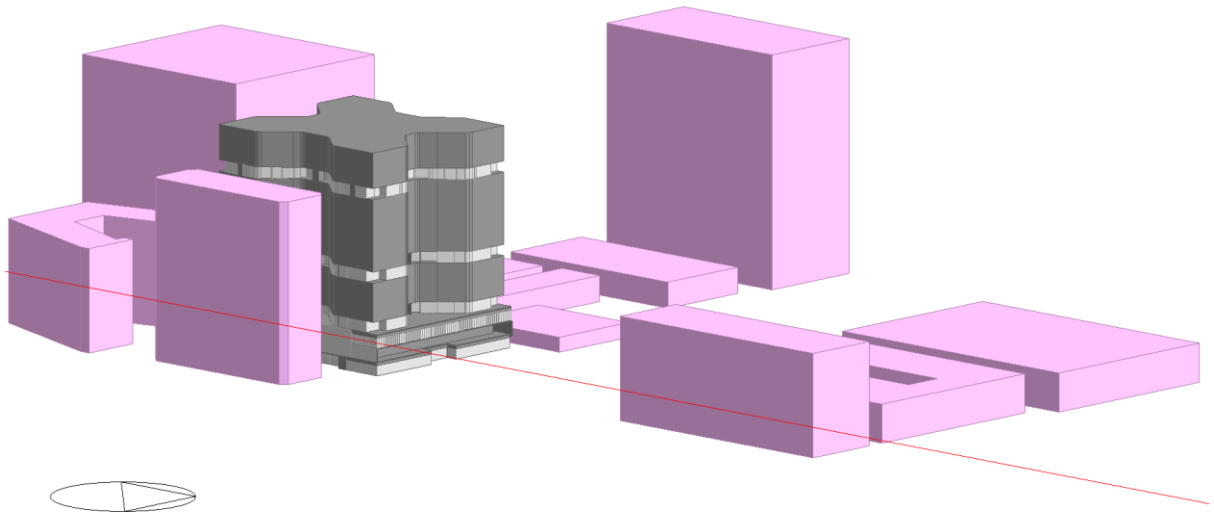

Figure 1 – Building Model of the site (North-East View)

3. BESS IEQ Daylight Assessment

3.1 Daylight Result – Non-Residential Component

For Non-residential component, BESS Indoor Environment Quality (IEQ) category requires the daylight modelling to be undertaken to demonstrate more than 30% of the nominated area achieves a daylight factor of at least 2% assuming a uniform design sky. Points are awarded as follows:

- 33% score for 30% of the nominated floor area achieves the daylight of at least 2%;
- 66% score for 60% of the nominated floor area achieves the daylight of at least 2%;
- 100% score for 90% of the nominated floor area achieves the daylight of at least 2%.

3.2 Daylight Result – Residential Component

For residential component, BESS Indoor Environment Quality (IEQ) category requires the daylight modelling to be undertaken to demonstrate:

More than 80% of the total number of bedrooms achieve a daylight factor greater than 0.5% to 90% of the floor area in each room assuming a uniform design sky. Points are awarded as follows.

- 66% score for 80% of the total number of bedrooms achieves the daylight of at least 0.5% to 90% of the floor area; and
- 100% score for 100% of the total number of bedrooms achieves the daylight of at least 0.5% to 90% of the floor area.

3.3 Podium Level Daylight Access Result

Ground to Level 02 retain the heritage façade, which naturally limits daylight penetration; however, the design thoughtfully addresses this to enhance daylight quality within the podium spaces. The daylight study for the podium levels assesses the availability and quality of natural light within occupied spaces for these levels. The analysis considers the impact of the retained heritage façade, surrounding urban context, and architectural features.

3.3.1 Ground Floor Podium Level Daylight Result - Contour Plot

Below is the daylight contour plot extracted from Design Builder daylight modelling result showing daylight availability across Ground Floor Podium level. This floor includes the retained heritage façade, which impacts daylight access in this area.

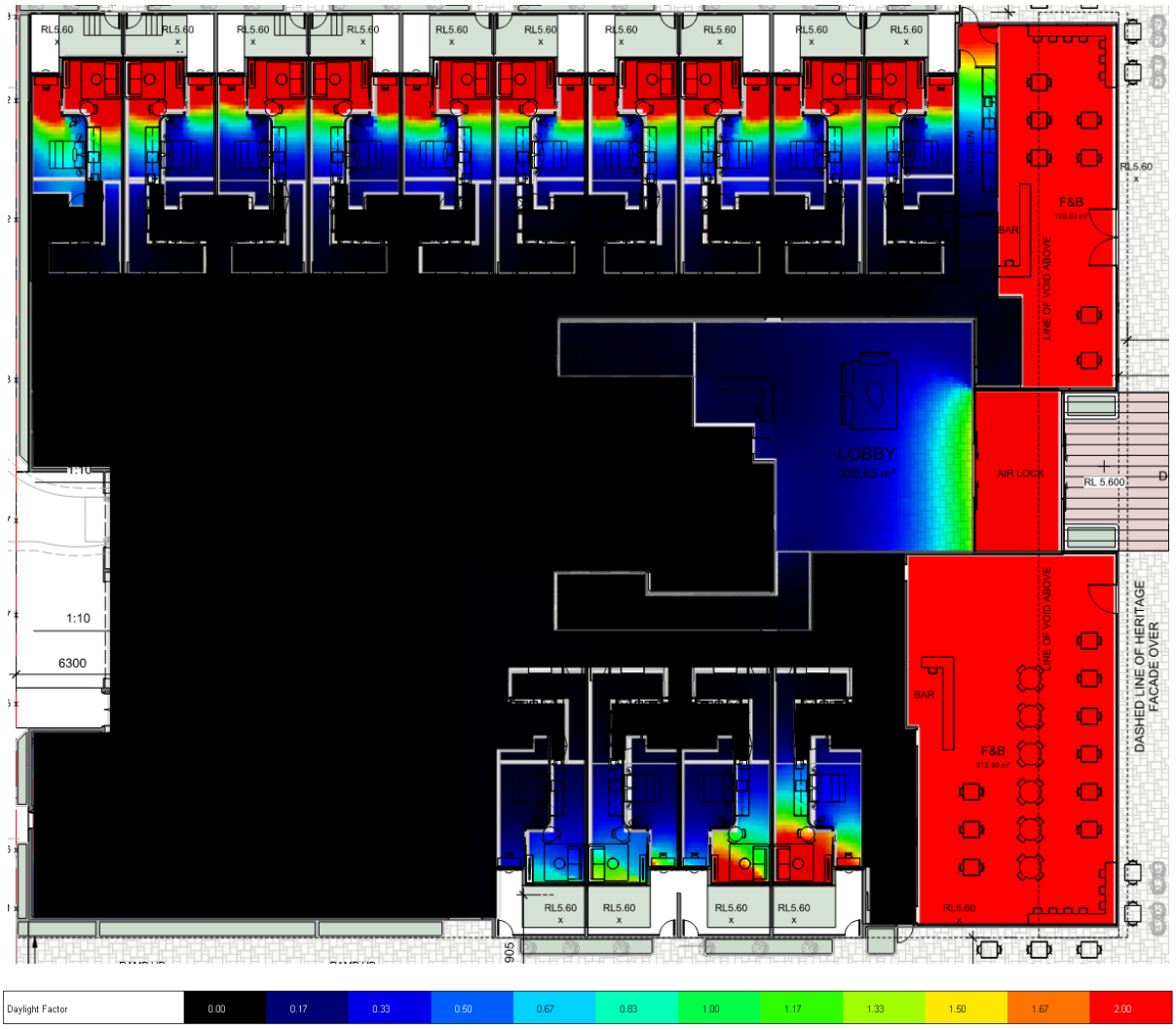

Figure 2 – Ground Floor Podium Daylight Contour Plot

3.3.2 Level 01 Podium Floor Daylight Result - Contour Plot

Below is the daylight contour plot extracted from Design Builder daylight modelling result showing daylight availability across Level 1 Podium Floor. This floor includes the retained heritage façade, which impacts daylight access in this area.

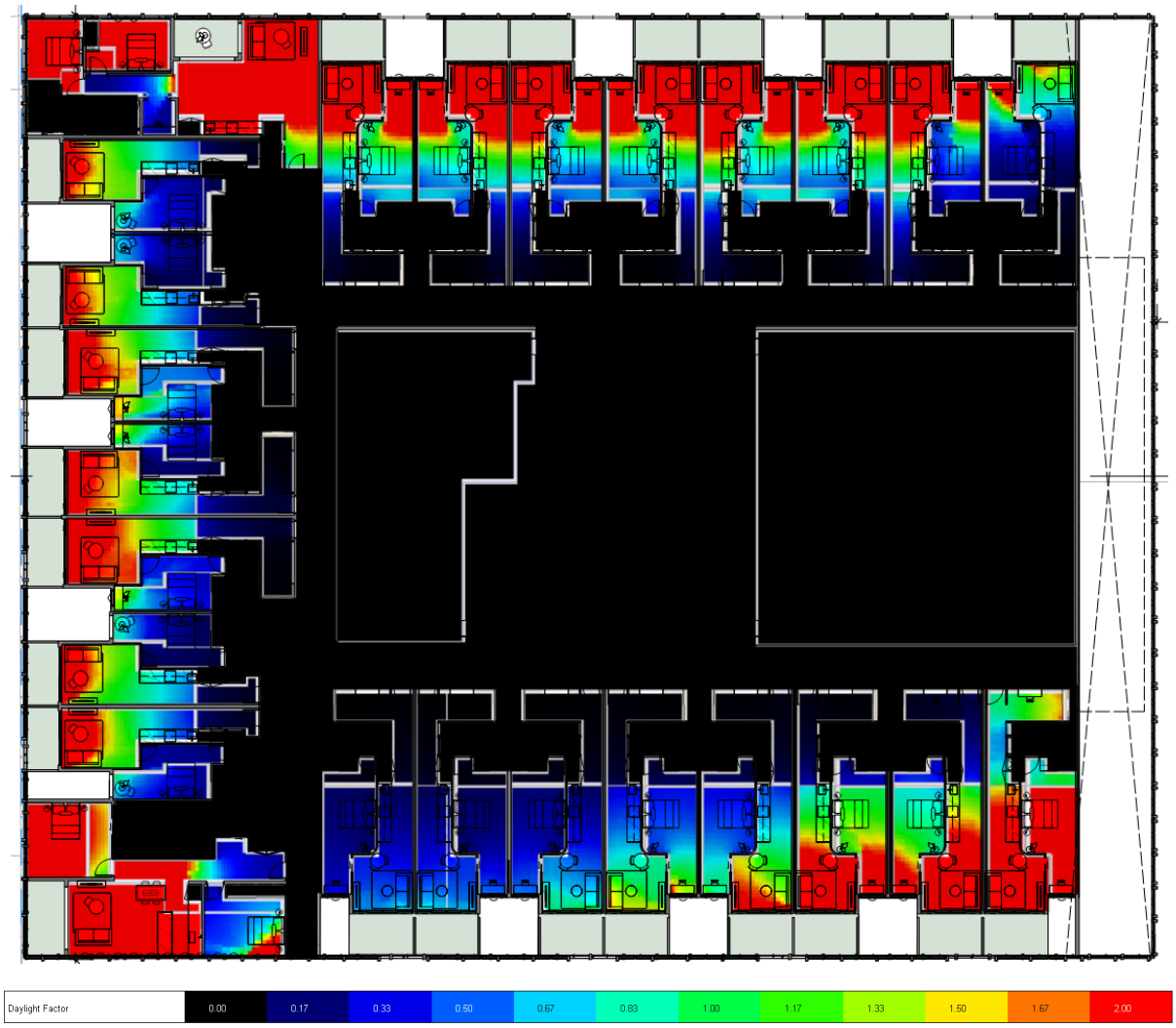

Figure 3 – Level 01 Podium Daylight Contour Plot

3.3.3 Level 02 Podium Floor Daylight Result - Contour Plot

Below is the daylight contour plot extracted from Design Builder daylight modelling result showing daylight availability across Level 2 Podium Floor. This floor includes the retained heritage façade, which impacts daylight access in this area.

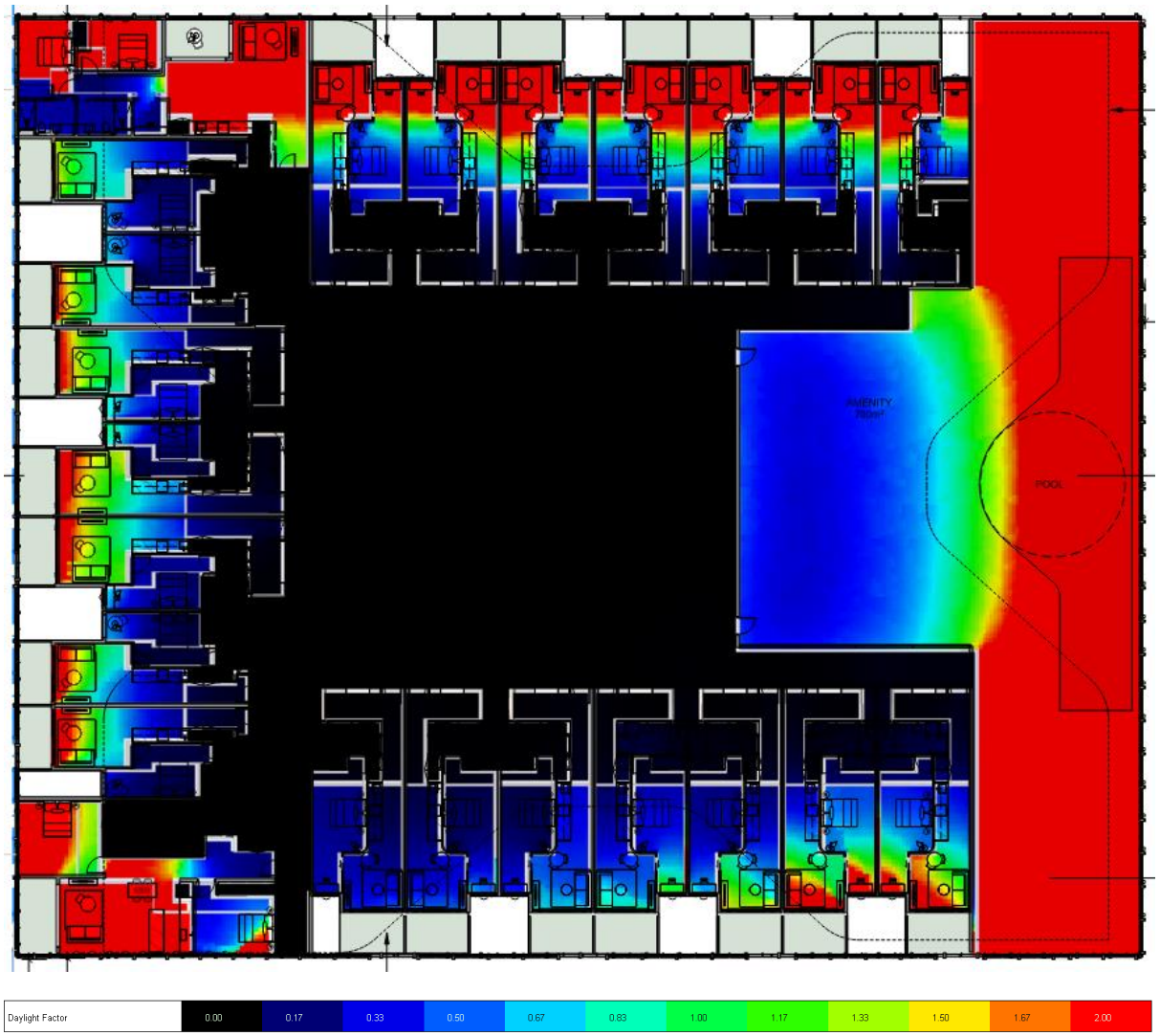

Figure 4 – Level 02 Podium Daylight Contour Plot

3.3.4 Podium Residential Dwellings Bedrooms Daylight Result – Summary Table

Daylight availability output of Podium Level Residential bedroom is tabulated below:

Block	Zone	Representative Floor	Floor area (m^2)	Floor Area above Threshold (m^2)	Floor Area above Threshold (%)
Ground Floor	APT 1 BED 1	1	13.3	5.5	42%
Ground Floor	APT 2 BED 1	1	14.0	7.1	51%
Ground Floor	APT 3 BED 1	1	13.9	8.8	63%
Ground Floor	APT 4 BED 1	1	14.0	7.0	50%
Ground Floor	APT 5 BED 1	1	13.9	8.1	58%
Ground Floor	APT 6 BED 1	1	15.6	9.6	62%
Ground Floor	APT 7 BED 1	1	13.4	4.8	36%
Ground Floor	APT 8 BED 1	1	14.0	5.5	40%
Ground Floor	APT 9 BED 1	1	13.9	6.0	43%
Ground Floor	APT 10 BED 1	1	15.1	15.0	99%
Ground Floor	APT 11 BED 1	1	13.9	0.0	0%
Ground Floor	APT 12 BED 1	1	13.8	2.6	19%
Ground Floor	APT 13 BED 1	1	13.9	1.4	10%
Ground Floor	APT 14 BED 1	1	13.8	5.8	42%
Level 1	APT 1 BED 1	1	13.4	4.4	32%
Level 1	APT 2 BED 1	1	13.3	9.2	69%
Level 1	APT 3 BED 1	1	14.0	14.0	100%
Level 1	APT 4 BED 1	1	13.9	13.9	100%
Level 1	APT 5 BED 1	1	14.0	14.0	100%
Level 1	APT 6 BED 1	1	13.9	13.5	97%
Level 1	APT 7 BED 1	1	14.0	14.0	100%
Level 1	APT 8 BED 1	1	13.9	13.9	100%
Level 1	APT 9 BED 1	1	9.8	9.8	100%
Level 1	APT 9 BED 2	1	9.2	9.2	100%
Level 1	APT 10 BED 1	1	11.8	2.7	23%
Level 1	APT 11 BED 1	1	12.7	2.2	17%
Level 1	APT 12 BED 1	1	8.3	6.7	81%
Level 1	APT 13 BED 1	1	8.8	4.0	45%
Level 1	APT 14 BED 1	1	8.8	3.6	41%
Level 1	APT 15 BED 1	1	8.7	2.2	25%
Level 1	APT 16 BED 1	1	9.0	2.7	30%
Level 1	APT 17 BED 1	1	13.6	13.6	100%
Level 1	APT 17 BED 2	1	11.2	8.5	76%

Level 1	APT 18 BED 1	1	13.9	0.0	0%
Level 1	APT 19 BED 1	1	13.8	0.8	5%
Level 1	APT 20 BED 1	1	13.9	1.4	10%
Level 1	APT 21 BED 1	1	13.8	8.3	60%
Level 1	APT 22 BED 1	1	13.9	7.0	50%
Level 1	APT 23 BED 1	1	13.8	13.8	100%
Level 1	APT 24 BED 1	1	13.9	13.9	100%
Level 1	APT 25 BED 1	1	13.8	13.8	100%
Level 2	APT 1 BED 1	1	14.0	7.8	55%
Level 2	APT 2 BED 1	1	14.0	7.8	55%
Level 2	APT 3 BED 1	1	13.9	10.6	76%
Level 2	APT 4 BED 1	1	14.0	9.4	67%
Level 2	APT 5 BED 1	1	13.9	8.3	60%
Level 2	APT 6 BED 1	1	14.0	8.1	58%
Level 2	APT 7 BED 1	1	13.9	7.2	52%
Level 2	APT 8 BED 1	1	9.8	9.8	100%
Level 2	APT 9 BED 1	1	9.2	9.2	100%
Level 2	APT 9 BED 2	1	11.8	1.3	11%
Level 2	APT 10 BED 1	1	12.7	2.2	17%
Level 2	APT 11 BED 1	1	8.3	2.2	27%
Level 2	APT 12 BED 1	1	8.8	2.2	25%
Level 2	APT 13 BED 1	1	8.8	1.2	14%
Level 2	APT 14 BED 1	1	8.7	1.5	17%
Level 2	APT 15 BED 1	1	9.0	0.0	0%
Level 2	APT 16 BED 1	1	13.6	13.6	100%
Level 2	APT 17 BED 1	1	11.2	6.7	60%
Level 2	APT 17 BED 2	1	13.9	0.0	0%
Level 2	APT 18 BED 1	1	13.8	1.0	7%
Level 2	APT 19 BED 1	1	13.9	0.0	0%
Level 2	APT 20 BED 1	1	13.8	3.9	29%
Level 2	APT 21 BED 1	1	13.9	2.0	14%
Level 2	APT 22 BED 1	1	13.8	13.8	100%
Level 2	APT 23 BED 1	1	13.9	10.1	72%

Total Assessed Bedrooms	**66**
Total Compliant Bedrooms	**18**
Total Compliant (% Rooms)	**27%**

3.3.5 Podium Residential Living Rooms Daylight Result – Summary Table

Daylight availability output of Podium Level Residential Living space is tabulated below:

Block	Zone	Representative Floor	Floor area (m^2)	Floor Area above Threshold (m^2)	Floor Area above Threshold (%)
Ground Floor	APT 1 LIV	1	17.3	12.5	72%
Ground Floor	APT 2 LIV	1	16.9	11.7	69%
Ground Floor	APT 3 LIV	1	17.3	13.2	76%
Ground Floor	APT 4 LIV	1	16.9	12.3	73%
Ground Floor	APT 5 LIV	1	17.3	12.2	70%
Ground Floor	APT 6 LIV	1	16.9	11.8	70%
Ground Floor	APT 7 LIV	1	18.2	12.9	71%
Ground Floor	APT 8 LIV	1	16.9	11.3	67%
Ground Floor	APT 9 LIV	1	17.8	13.6	76%
Ground Floor	APT 10 LIV	1	17.4	14.3	82%
Ground Floor	APT 11 LIV	1	17.5	0.2	1%
Ground Floor	APT 12 LIV	1	17.1	3.4	20%
Ground Floor	APT 13 LIV	1	17.1	12.8	75%
Ground Floor	APT 14 LIV	1	17.5	9.4	54%
Level 1	APT 1 LIV	1	16.9	4.8	28%
Level 1	APT 2 LIV	1	17.3	16.3	94%
Level 1	APT 3 LIV	1	16.9	15.2	90%
Level 1	APT 4 LIV	1	17.3	16.8	97%
Level 1	APT 5 LIV	1	16.9	15.2	90%
Level 1	APT 6 LIV	1	17.3	15.7	91%
Level 1	APT 7 LIV	1	16.9	15.2	90%
Level 1	APT 8 LIV	1	17.3	15.6	90%
Level 1	APT 9 LIV	1	41.1	41.0	100%
Level 1	APT 10 LIV	1	19.9	14.2	72%
Level 1	APT 11 LIV	1	19.9	13.8	69%
Level 1	APT 12 LIV	1	19.9	16.0	80%
Level 1	APT 13 LIV	1	20.2	16.0	79%
Level 1	APT 14 LIV	1	20.3	19.0	94%
Level 1	APT 15 LIV	1	19.9	14.1	71%
Level 1	APT 16 LIV	1	19.7	14.3	73%
Level 1	APT 17 LIV	1	26.8	26.8	100%
Level 1	APT 18 LIV	1	17.5	0.0	0%
Level 1	APT 19 LIV	1	17.1	0.0	0%

Level 1	APT 20 LIV	1	17.5	0.9	5%
Level 1	APT 21 LIV	1	17.1	6.1	36%
Level 1	APT 22 LIV	1	17.5	11.0	63%
Level 1	APT 23 LIV	1	17.1	15.3	90%
Level 1	APT 24 LIV	1	17.5	17.5	100%
Level 1	APT 25 LIV	1	17.1	17.1	100%
Level 2	APT 1 LIV	1	17.3	16.0	92%
Level 2	APT 2 LIV	1	16.9	13.6	80%
Level 2	APT 3 LIV	1	17.3	14.6	84%
Level 2	APT 4 LIV	1	16.9	13.7	81%
Level 2	APT 5 LIV	1	17.3	15.8	91%
Level 2	APT 6 LIV	1	16.9	13.5	80%
Level 2	APT 7 LIV	1	17.3	13.5	78%
Level 2	APT 8 LIV	1	41.1	41.0	100%
Level 2	APT 9 LIV	1	19.9	6.1	30%
Level 2	APT 10 LIV	1	19.9	7.6	38%
Level 2	APT 11 LIV	1	19.9	10.7	54%
Level 2	APT 12 LIV	1	20.2	13.6	67%
Level 2	APT 13 LIV	1	20.3	13.9	68%
Level 2	APT 14 LIV	1	19.9	8.5	43%
Level 2	APT 15 LIV	1	19.7	9.3	47%
Level 2	APT 16 LIV	1	26.8	26.8	100%
Level 2	APT 17 LIV	1	17.5	0.0	0%
Level 2	APT 18 LIV	1	17.1	0.0	0%
Level 2	APT 19 LIV	1	17.5	0.0	0%
Level 2	APT 20 LIV	1	17.1	0.0	0%
Level 2	APT 21 LIV	1	17.5	5.4	31%
Level 2	APT 22 LIV	1	17.1	9.4	55%
Level 2	APT 23 LIV	1	17.5	9.6	55%

Total Assessed Bedrooms	**62**
Total Compliant Bedrooms	**17**
Total Compliant (% Rooms)	**27%**

3.3.6 Non-Residential Daylight Result – Summary Table

Daylight availability output of Non-Residential space is tabulated below:

Block	Zone	Floor area (m^2)	Floor Area above Threshold (m^2)	Floor Area above Threshold (%)
Ground Floor	FOOD AND BEVERAGE 1	234.3	234.3	100%
Ground Floor	FOOD AND BEVERAGE 2	127.2	127.2	100%

Overall Total Area (m^2)	361.5
Overall Total Compliant Area (m^2)	361.5
Overall Total Compliant Area (%)	100%

3.4 Tower Daylight Access Result

The tower section of the development, extending from Level 3 upwards, has been designed to optimise natural light access.

3.4.1 Level 03 Tower Dwellings Daylight Result - Contour Plot

Below is the daylight contour plot extracted from Design Builder daylight modelling result showing daylight availability across Level 03.

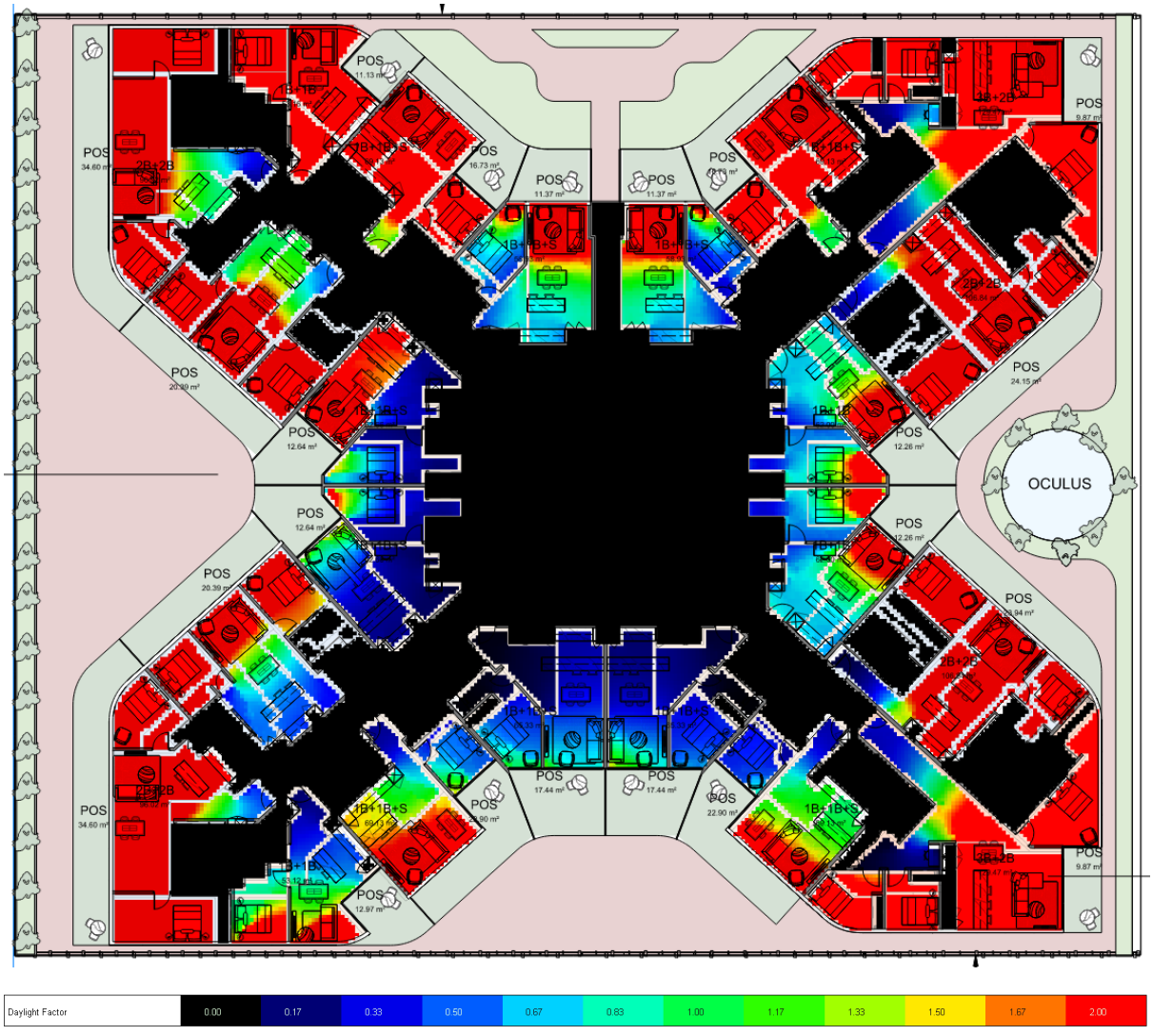

Figure 5 – Level 03 Tower Daylight Contour Plot

3.4.2 Level 07 Tower Representative Dwellings Daylight Result - Contour Plot

Below is the daylight contour plot extracted from Design Builder daylight modelling result showing daylight availability across Level 07. This floor is representative from Levels 04 and 11.

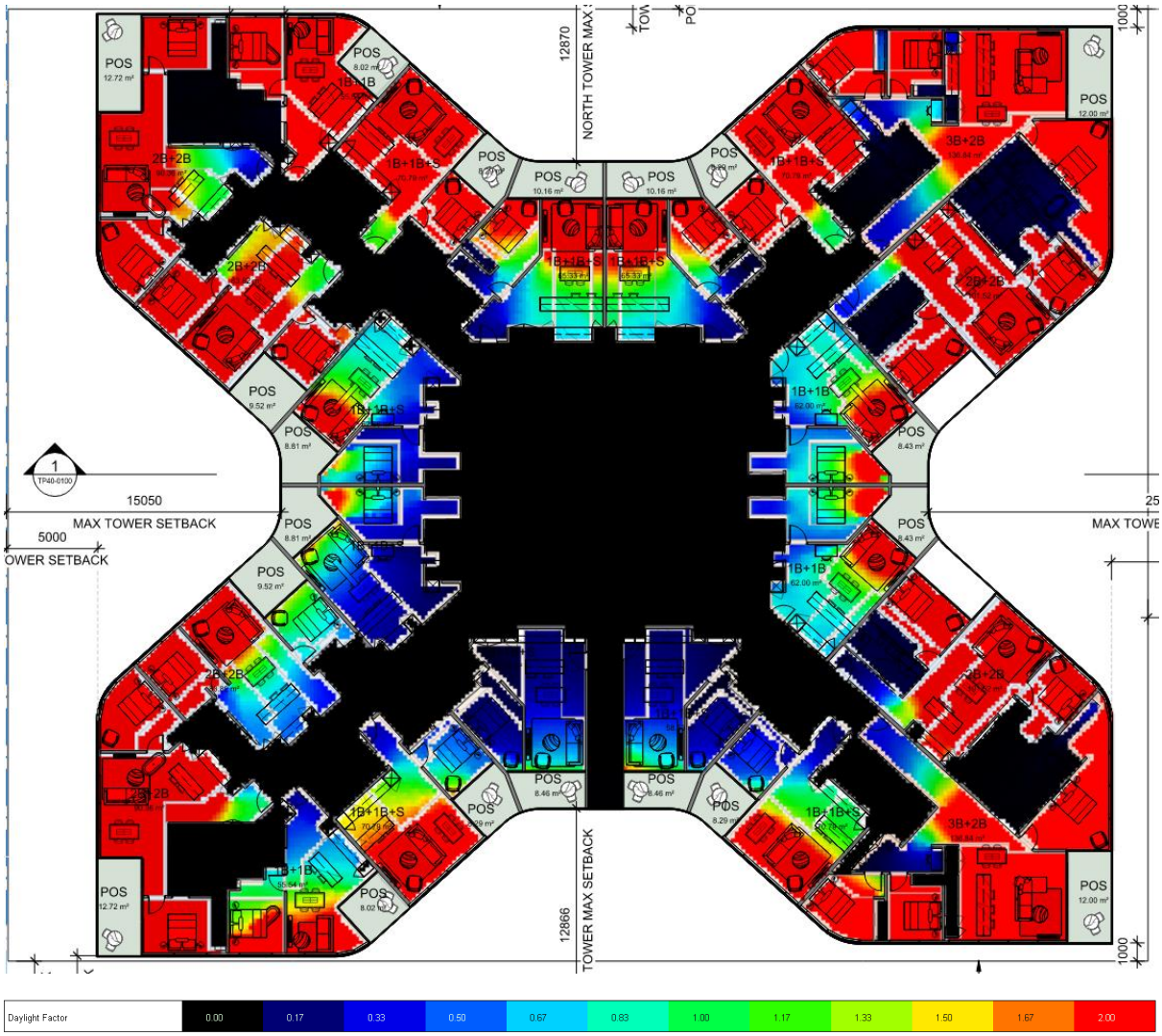

Figure 6 – Level 07 Tower Daylight Contour Plot

3.4.3 Level 14 Tower Dwellings Daylight Result - Contour Plot

Below is the daylight contour plot extracted from Design Builder daylight modelling result showing daylight availability across Level 14. This floor is representative from Levels 12 and 17.

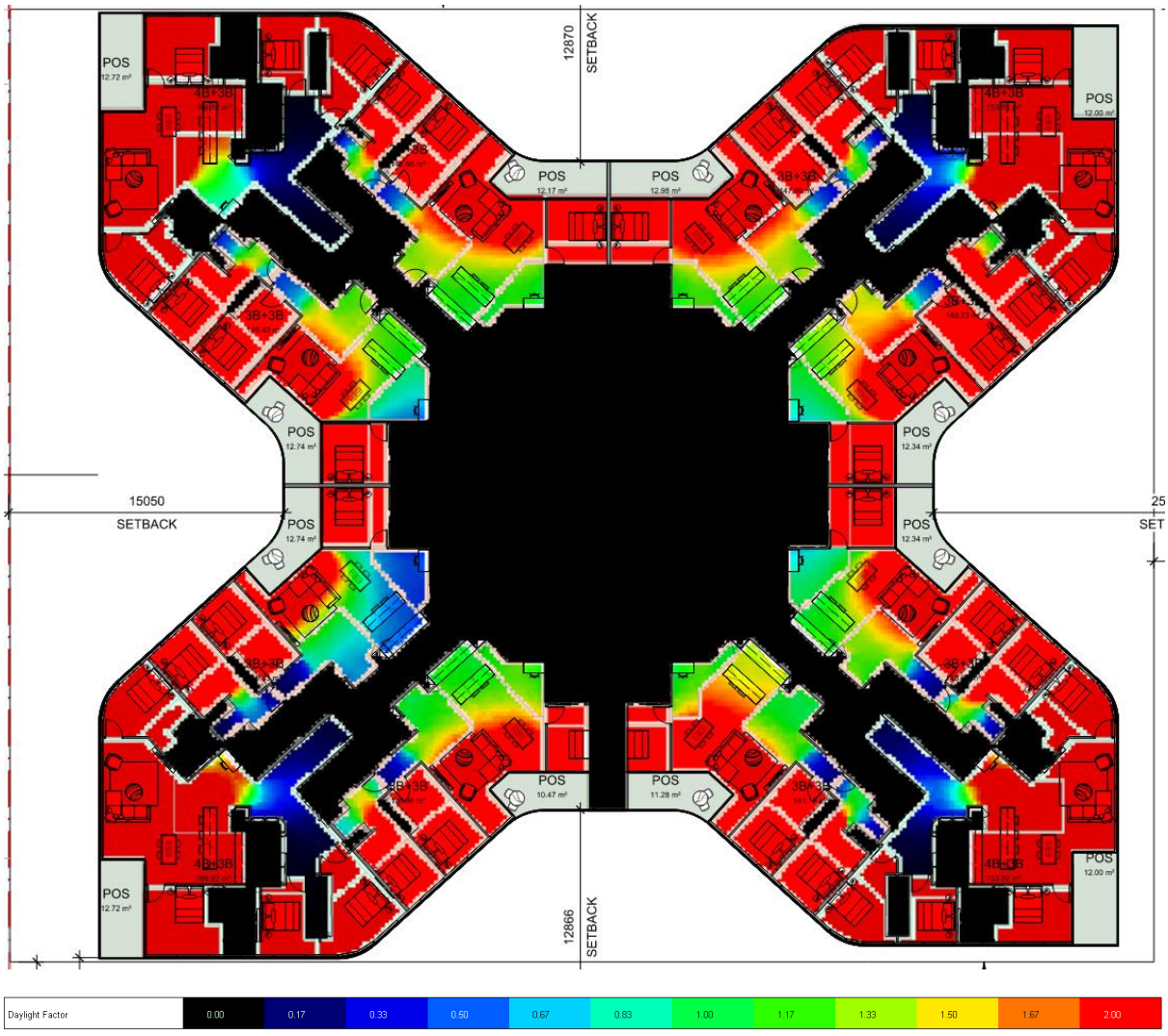

Figure 7 – Level 14 Tower Daylight Contour Plot

3.4.4 Tower Residential Dwellings Bedrooms Daylight Result – Summary Table

Daylight availability output of Tower Residential bedroom is tabulated below:

Block	Zone	Representative Floor	Floor area (m^2)	Floor Area above Threshold (m^2)	Floor Area above Threshold (%)
Level 3	APT 1 BED 1	1.0	6.8	6.8	100%
Level 3	APT 1 BED 2	1.0	6.1	6.1	100%
Level 3	APT 1 BED 3	1.0	18.2	18.2	100%
Level 3	APT 2 BED 1	1.0	7.9	7.9	100%
Level 3	APT 2 BED 2	1.0	13.2	13.2	100%
Level 3	APT 3 BED 1	1.0	8.2	8.2	100%
Level 3	APT 4 BED 1	1.0	7.9	7.9	100%
Level 3	APT 5 BED 1	1.0	13.1	13.1	100%
Level 3	APT 5 BED 2	1.0	7.4	7.4	100%
Level 3	APT 5 BED 3	1.0	18.8	18.8	100%
Level 3	APT 6 BED 1	1.0	6.4	6.4	100%
Level 3	APT 6 BED 2	1.0	6.9	6.9	100%
Level 3	APT 7 BED 1	1.0	8.5	1.8	21%
Level 3	APT 8 BED 1	1.0	10.9	3.1	29%
Level 3	APT 9 BED 1	1.0	11.0	10.2	93%
Level 3	APT 10 BED 1	1.0	8.7	8.7	100%
Level 3	APT 11 BED 1	1.0	7.6	7.6	100%
Level 3	APT 12 BED 1	1.0	13.9	13.9	100%
Level 3	APT 12 BED 2	1.0	8.3	8.3	100%
Level 3	APT 13 BED 1	1.0	7.6	7.6	100%
Level 3	APT 13 BED 2	1.0	12.5	12.5	100%
Level 3	APT 14 BED 1	1.0	7.9	4.6	58%
Level 3	APT 15 BED 1	1.0	8.2	5.7	70%
Level 3	APT 16 BED 1	1.0	12.2	12.2	100%
Level 3	APT 16 BED 2	1.0	9.7	9.7	100%
Level 3	APT 17 BED 3	1.0	14.5	14.5	100%
Level 3	APT 17 BED 2	1.0	8.5	8.5	100%
Level 3	APT 18 BED 1	1.0	7.8	7.8	100%
Level 3	APT 19 BED 1	1.0	8.3	8.3	100%
Level 3	APT 20 BED 1	1.0	10.1	9.8	97%
Level 3	APT 21 BED 1	1.0	9.3	9.3	100%
Level 3	APT 22 BED 1	1.0	8.4	8.4	100%
Level 7	APT 1 BED 1	8.0	8.4	8.4	100%
Level 7	APT 1 BED 2	8.0	7.1	7.1	100%
Level 7	APT 1 BED 3	8.0	22.2	22.2	100%

Level 7	APT 2 BED 1	8.0	9.1	9.1	100%
Level 7	APT 2 BED 2	8.0	9.7	9.7	100%
Level 7	APT 3 BED 1	8.0	8.2	8.2	100%
Level 7	APT 4 BED 1	8.0	7.9	7.9	100%
Level 7	APT 5 BED 1	8.0	10.4	10.4	100%
Level 7	APT 5 BED 2	8.0	8.3	8.3	100%
Level 7	APT 5 BED 3	8.0	22.2	22.2	100%
Level 7	APT 6 BED 2	8.0	7.8	7.8	100%
Level 7	APT 6 BED 3	8.0	8.7	8.7	100%
Level 7	APT 7 BED 1	8.0	8.5	7.9	93%
Level 7	APT 8 BED 1	8.0	8.7	0.4	5%
Level 7	APT 9 BED 1	8.0	8.7	0.6	7%
Level 7	APT 10 BED 1	8.0	8.7	8.7	99%
Level 7	APT 11 BED 1	8.0	9.2	9.2	100%
Level 7	APT 12 BED 1	8.0	11.7	11.7	100%
Level 7	APT 12 BED 2	8.0	10.9	10.9	100%
Level 7	APT 13 BED 1	8.0	8.8	8.8	100%
Level 7	APT 13 BED 2	8.0	8.9	8.9	100%
Level 7	APT 14 BED 1	8.0	7.9	6.4	81%
Level 7	APT 15 BED 1	8.0	7.9	7.1	90%
Level 7	APT 16 BED 1	8.0	8.6	8.6	100%
Level 7	APT 16 BED 2	8.0	11.1	11.1	100%
Level 7	APT 17 BED 1	8.0	11.3	11.3	100%
Level 7	APT 17 BED 2	8.0	10.9	10.9	100%
Level 7	APT 18 BED 1	8.0	9.0	9.0	100%
Level 7	APT 19 BED 1	8.0	8.3	8.3	100%
Level 7	APT 20 BED 1	8.0	7.0	7.0	100%
Level 7	APT 21 BED 1	8.0	6.8	6.8	100%
Level 7	APT 22 BED 1	8.0	8.7	8.7	100%
Level 14	APT 1 BED 1	6.0	8.7	8.7	100%
Level 14	APT 1 BED 2	6.0	8.6	8.6	100%
Level 14	APT 1 BED 3	6.0	11.4	11.4	100%
Level 14	APT 1 BED 4	6.0	9.8	9.8	100%
Level 14	APT 2 BED 1	6.0	8.9	8.9	100%
Level 14	APT 2 BED 2	6.0	14.8	14.8	100%
Level 14	APT 2 BED 3	6.0	7.9	7.9	100%
Level 14	APT 3 BED 1	6.0	7.9	7.9	100%
Level 14	APT 3 BED 2	6.0	8.5	8.5	100%
Level 14	APT 3 BED 3	6.0	8.7	8.7	100%
Level 14	APT 4 BED 1	6.0	9.8	9.8	100%
Level 14	APT 4 BED 2	6.0	10.7	10.7	100%

Level 14	APT 4 BED 3	6.0	6.5	6.5	100%
Level 14	APT 4 BED 4	6.0	8.9	8.9	100%
Level 14	APT 5 BED 1	6.0	5.9	5.9	100%
Level 14	APT 5 BED 1	6.0	8.7	8.7	100%
Level 14	APT 5 BED 3	6.0	8.8	8.8	100%
Level 14	APT 6 BED 1	6.0	5.5	5.5	100%
Level 14	APT 6 BED 2	6.0	8.8	8.8	100%
Level 14	APT 6 BED 3	6.0	7.5	7.5	100%
Level 14	APT 7 BED 1	6.0	11.7	11.7	100%
Level 14	APT 7 BED 2	6.0	9.0	9.0	100%
Level 14	APT 7 BED 3	6.0	14.5	14.5	100%
Level 14	APT 7 BED 4	6.0	10.9	10.9	100%
Level 14	APT 8 BED 1	6.0	8.8	8.8	100%
Level 14	APT 8 BED 2	6.0	8.8	8.8	100%
Level 14	APT 8 BED 3	6.0	8.8	8.8	100%
Level 14	APT 9 BED 1	6.0	8.7	8.7	100%
Level 14	APT 9 BED 2	6.0	8.8	8.8	100%
Level 14	APT 9 BED 3	6.0	9.0	9.0	100%
Level 14	APT 10 BED 1	6.0	10.0	10.0	100%
Level 14	APT 10 BED 2	6.0	14.6	14.6	100%
Level 14	APT 10 BED 3	6.0	8.9	8.9	100%
Level 14	APT 10 BED 4	6.0	11.4	11.4	100%
Level 14	APT 11 BED 1	6.0	8.1	8.1	100%
Level 14	APT 11 BED 2	6.0	8.7	8.7	100%
Level 14	APT 11 BED 3	6.0	8.7	8.7	100%
Level 14	APT 12 BED 1	6.0	8.5	8.5	100%
Level 14	APT 12 BED 2	6.0	8.8	8.8	100%
Level 14	APT 12 BED 3	6.0	8.8	8.8	100%

Total Assessed Bed Rooms	**528**
Total Compliant Bed Rooms	**503**
Total Compliant (% Rooms)	**95%**

3.4.5 Tower Residential Dwellings Living Rooms Daylight Result – Summary Table

Daylight availability output of Tower Residential Living space is tabulated below:

Block	Zone	Representative Floor	Floor area (m^2)	Floor Area above Threshold (m^2)	Floor Area above Threshold (%)
Level 3	APT 1 LIV	1.0	28.7	28.7	100%
Level 3	APT 2 LIV	1.0	22.0	22.0	100%
Level 3	APT 3 LIV	1.0	16.5	15.7	95%
Level 3	APT 4 LIV	1.0	17.6	16.1	91%
Level 3	APT 5 LIV	1.0	23.9	23.9	100%
Level 3	APT 6 LIV	1.0	27.0	27.0	100%
Level 3	APT 7 LIV	1.0	21.6	21.6	100%
Level 3	APT 8 LIV	1.0	21.2	1.1	5%
Level 7	APT 9 LIV	1.0	19.8	1.1	6%
Level 3	APT 10 LIV	1.0	23.0	23.0	100%
Level 3	APT 11 LIV	1.0	18.4	16.8	91%
Level 3	APT 12 LIV	1.0	31.9	31.9	100%
Level 3	APT 13 LIV	1.0	20.8	18.9	91%
Level 3	APT 14 LIV	1.0	20.7	2.2	11%
Level 3	APT 15 LIV	1.0	20.6	20.6	100%
Level 3	APT 16 LIV	1.0	20.9	20.9	100%
Level 3	APT 17 LIV	1.0	29.7	29.2	99%
Level 3	APT 18 LIV	1.0	20.6	20.6	100%
Level 3	APT 19 LIV	1.0	21.5	21.5	100%
Level 3	APT 20 LIV	1.0	25.7	23.2	90%
Level 3	APT 21 LIV	1.0	25.6	23.2	91%
Level 3	APT 22 LIV	1.0	22.5	22.5	100%
Level 7	APT 1 LIV	8.0	30.8	30.8	100%
Level 7	APT 2 LIV	8.0	23.7	23.7	100%
Level 7	APT 3 LIV	8.0	16.4	16.4	100%
Level 7	APT 4 LIV	8.0	17.6	17.6	100%
Level 7	APT 5 LIV	8.0	25.3	25.3	100%
Level 7	APT 6 LIV	8.0	30.0	30.0	100%
Level 7	APT 7 LIV	8.0	23.6	23.6	100%
Level 7	APT 8 LIV	8.0	20.0	1.3	6%
Level 7	APT 9 LIV	8.0	19.8	1.3	6%
Level 7	APT 10 LIV	8.0	24.7	24.7	100%
Level 7	APT 11 LIV	8.0	19.8	18.0	91%
Level 7	APT 12 LIV	8.0	31.4	31.4	100%
Level 7	APT 13 LIV	8.0	22.3	21.1	94%

Level 7	APT 14 LIV	8.0	20.7	3.3	16%
Level 7	APT 15 LIV	8.0	21.5	21.5	100%
Level 7	APT 16 LIV	8.0	22.6	22.6	100%
Level 7	APT 17 LIV	8.0	28.5	28.5	100%
Level 7	APT 18 LIV	8.0	22.2	22.2	100%
Level 7	APT 19 LIV	8.0	23.5	23.5	100%
Level 7	APT 20 LIV	8.0	20.0	20.0	100%
Level 7	APT 21 LIV	8.0	19.1	19.1	100%
Level 7	APT 22 LIV	8.0	24.1	24.1	100%
Level 14	APT 1 LIV	6.0	34.1	34.1	100%
Level 14	APT 2 LIV	6.0	31.7	31.7	100%
Level 14	APT 3 LIV	6.0	29.9	29.9	100%
Level 14	APT 4 LIV	6.0	34.0	34.0	100%
Level 14	APT 5 LIV	6.0	33.8	33.8	100%
Level 14	APT 6 LIV	6.0	34.5	34.5	100%
Level 14	APT 7 LIV	6.0	38.1	38.1	100%
Level 14	APT 8 LIV	6.0	30.9	19.2	62%
Level 14	APT 9 LIV	6.0	30.2	30.2	100%
Level 14	APT 10 LIV	6.0	38.4	38.4	100%
Level 14	APT 11 LIV	6.0	36.1	36.1	100%
Level 14	APT 12 LIV	6.0	34.3	34.3	100%

Total Assessed Living Rooms	**270**
Total Compliant Living Rooms	**237**
Total Compliant (% Rooms)	**88%**

4. Conclusion

BESS IEQ category requires minimum 80% of the total number of living rooms to achieve a daylight factor greater than 1% to 90% of the floor area in each room; and minimum 80% of the total number of bedrooms to achieve a daylight factor greater than 0.5% to 90% of the floor area in each room to meet minimum BESS requirements for daylight availability

The daylight modelling results indicate that for the newly proposed tower section of the development, more than 80% of living rooms achieve a daylight factor of at least 1% across 90% of the floor area, and more than 80% of bedrooms achieve a daylight factor of at least 0.5% across 90% of the floor area, meeting the BESS daylight requirements.

While the retained heritage façade from Ground Floor to Level 2 constrains daylight access, the design has been carefully developed to maximise available daylight within the character and limitations of the existing structure.

Overall, the results indicate that the tower section of the development has met the BESS IEQ daylight access requirements.