Project: 1-0504
Version: 04
Date: 29_FEBRUARY 2024

ADVERTISED PLAN

Sustainability Management Plan

511 - 537 Sydney Road, Coburg

HIP V. HYPE

WHO WE ARE

HIP V. HYPE Sustainability provides advice that is commercially grounded, yet ambitious. We pursue exceptional outcomes that are socially, economically and environmentally sustainable and enable action across government, institutions and organisations.

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VERSION	DATE	ISSUE	PREPARED BY	APPROVED BY
01	01_DEC 2023	Draft Town Planning	Tushara Rose, Senior Consultant	David Mahony, Head of Better Buildings
02	15_DEC 2023	Final Draft	Tushara Rose, Senior Consultant	David Mahony, Head of Better Buildings
02	16_FEB 2024	DTP Issue	Tushara Rose, Senior Consultant	David Mahony, Head of Better Buildings
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Project Overview

Project Name	Assemble Communities: Sydney Road, Coburg
Address	511 - 537 Sydney Road, Coburg VIC 3058
Traditional Custodians	Wurundjeri Woi-wurrung
Client	Assemble Communities
Development Manager	Armitage Jones
Architect	Jackson Clements Burrows Architects
Landscape	Mala
Sustainability	HIP V. HYPE
Development Summary	Site Area: 6,630 m² Commercial: 1,068 m² Retail: 103 m² Apartments: 326 Car Parking: 156 Spaces Bike Parking: 610 Spaces

Assemble Communities: Sydney Road, Coburg. Image by Jackson Burrows Clements Architects.

Assemble Coburg will comprise a mixed-use precinct that contains build-to-rent-to-own residential, retail, commercial and neighbourhood amenity spaces and will create new opportunities to connect and engage with the Coburg community.

This Sustainability Management Plan (SMP) has been prepared to communicate the approach taken to embed sustainability into the design, construction and operation of the site as a mixed-use residential precinct. The project has a focus on sustainable living, with many features embedded into the design and construction to realise a high-performing project that benefits people, place and planet

Assemble Communities: Sydney Road, Coburg. Image by Jackson Burrows Clements Architects.

Executive Summary

KEY INITIATIVES

The following key initiatives have been adopted by the project team and underpin the design approach:

- Passive design to target a minimum average NatHERS rating of at least 7.5-Stars, minimising the need for active energy systems
- No fossil fuels including natural gas. 100% all-electric building supplied with renewable energy through an embedded network
- Maintain comfortable internal temperatures passively, using little or no energy, providing comfortable living spaces year round and protecting inhabitants from extreme weather events
- Create healthy homes, including reduction in the use of harmful VOCs in glues, sealants and paints, and protection from dust and other external airborne pollutants
- Cost effective design that provides a sustainable outcome, avoiding over engineering and providing for simple maintenance over time
- Minimise consumption of natural resources, including water and raw materials
- Minimise environmental impacts through operation, including energy consumption, waste creation and discharge of pollutants

BESS ASSESSMENT

Assemble Coburg demonstrates industry 'Excellence' within BESS, achieving an overall score of 71%.

CATEGORY	SCORE
Management	99%
Water	57%
Energy	70%
Stormwater	100%
IEQ	50%
Transport	88%
Waste	100%
Urban Ecology	55%
Innovation	40%
TOTAL BESS SCORE	**71%**

Assemble Communities: Sydney Road, Coburg.
Image by Jackson Burrows Clements Architects.

Statutory Requirements

This section provides an overview of the statutory requirements outlined in City of Merri-bek's Planning Scheme. Assemble Coburg responds to Environmental Sustainable Development Clause 15.01-2L-05.

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CLAUSE 15.01-2L-05 ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

Energy Performance

Reduce both energy use and energy peak demand through design measures such as:

- Building orientation
- Shading to glazed surfaces
- Optimising glazing to exposed surfaces
- Inclusion of or space allocation for renewable technologies

Integrated Water Management

- Reduce total operating potable water use through appropriate design measures such as water efficient fixtures, appliances, equipment, irrigation and landscaping
- Encourage the appropriate use of alternative water sources (including greywater, rainwater and stormwater)
- Incorporate best practice water sensitive urban design to improve the quality of stormwater runoff and reduce impacts on water systems and water bodies

Indoor Environment Quality

- Achieve a healthy indoor environment quality, including thermal performance and access to fresh air and daylight, prioritising passive design over mechanical heating, ventilation, cooling and lighting
- Reduce indoor air pollutants by encouraging the use of low-toxicity materials
- Minimise noise levels and noise transfer within and between buildings and associated external areas

Transport

- Design development to promote the use of walking, cycling and public transport, in that order; and minimise car dependency
- Promote the use of low emissions vehicle technologies and supporting infrastructure

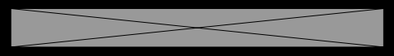
Waste Management

- Promote waste avoidance, reuse and recycling during the design, construction and operation stages of development
- Encourage use of durable and reusable building materials
- Ensure sufficient space is allocated for future change in waste management needs, including (where possible) composting and green waste facilities

Urban Ecology

- Protect and enhance biodiversity by incorporating natural habitats and planting indigenous vegetation
- Reduce urban heat island effects through building design, landscape design, water sensitive urban design and the retention and provision of canopy and significant trees
- Encourage the provision of space for productive gardens, particularly in larger residential developments

Our responsibility is to leave our cities and regions in a better condition than we found them.



Effective management practices can improve the sustainability performance of a project by influencing areas where decision-making is critical. Projects should prioritise the implementation of processes and strategies that support positive sustainability outcomes during construction.

PROJECT RESPONSE

Assemble Coburg responds to these requirements through fundamental integration of a number of measures. These include:

Pre-application Meeting

- HV.H have been involved in a pre-application meeting with Council, and also contributing a summary report prior to the pre-application meeting

Thermal Performance Modelling

- Preliminary NatHERS modelling has been undertaken, Refer Appendix A
- Preliminary facade assessment has been undertaken, Refer Appendix E

Metering

- Utility meters will be provided to all apartments, with commercial and retail space also separately metered
- All common area lighting and power will be separately metered

Building Users Guide

- A building user's guide with information on how to most efficiently operate all active systems will be provided through a resident welcome pack

Embedded Network

- An embedded network will be utilised in the project to ensure renewable energy can be provided to all apartments

Rooftop Solar at Burwood Brickworks. Photography by Kim Landy.

Water is an increasingly important natural resource. Well managed, it can provide for a multitude of uses critical to our day to day lives, while also sustaining the environment on which we fundamentally depend.

However, there are increasing demands placed on our water sources, and unsustainable water management practices are common.

A building's design has a significant impact on the water consumption of its occupants, along with the way water leaves the site through the sewer and stormwater systems. Minor changes to design can have long lasting benefits.

PROJECT RESPONSE

The development has applied the following key design measures in relation to water use:

Fittings & Fixtures

- During documentation the project will specify the following minimum WELS ratings for fittings and fixtures:
  - Showers: 4-star (<7.5L/min)
  - Toilets: 4-star
  - Taps: 6-star
  - Dishwashers: 5-star
  - Washing machine: 5-star

Landscape

- Where appropriate drought tolerant plant species will be specified for landscaping

Building Services

- Mechanical building systems will be air-cooled rather than water-cooled
- Water used in fire test system will be collected and reused for another fit-for purpose use

Rainwater & Stormwater Management

- A total capacity of 40kL rainwater tanks will be installed for capturing rainwater for use in occupant toilet flushing and ground level irrigation
- Trafficable terraces and landscaped areas will be directed to an end of line treatment device prior to discharge to LPOD
- A STORM score of 100% has been achieved by the project, which meets the minimum requirement, along with a MUSIC assessment demonstrating best practice outcomes
- Refer Appendix B for WSUD Assessment

Rainwater connections to balcony taps at Ferrars & York.
Photography by Kim Landy.

Energy Efficiency

An energy efficienct building is the product of an effective response to environmental factors, early strategic thinking in design and a considered approach to construction.

Achieving a highly energy efficient building doesn't require a significant additional upfront cost. Often, it's just ensuring basic principles of passive design are integrated early on, and that ongoing energy use is considered when selecting building services and appliances.

PROJECT RESPONSE

Assemble Coburg responds to these requirements through fundamental integration of a number of measures. These include:

Thermal Performance

- An average thermal performance target for all residences of at least 7.5-Star NatHERS
- Glazing placement and sizing carefully managed to reduce unwanted heat gain and heat loss, while providing natural light to habitable spaces
- High-performance, double glazed window systems to all apartments

A preliminary sample of NatHERS ratings has been undertaken; the outputs are included in Appendix A.

Passive design features at Gillies Hall, Monash University.
Photography by Kim Landy.

Energy Efficiency

An effective approach to energy efficiency is also often the simplest, cheapest way to reduce greenhouse gas emissions and ongoing operational costs.

Energy Efficiency

- All exposed floors and ceilings in non-residential areas demonstrate a minimum 10% improvement in required NCC 2019 insulation levels (total R-value upwards and downwards)
- Heating and cooling systems are within 70% of the most efficient equivalent capacity unit available (4-star equivalent)
- Water heating systems are Band 3 efficiency Heat Pumps
- Domestic hot water provided by highly efficient centralised heat pump system

Efficient Systems and Appliances

- All internal lighting will be provided at 20% better than that required by NCC2019 Table J6.2a
- Electric induction cooktops will be provided for all apartments
- Shared clotheslines and communal laundry facilities are provided for in each building

Renewable Energy

- Zero fossil fuel development, including embedded network providing 100% renewable energy
- A 60.0 kWp solar photovoltaic system will be installed on the rooftop, offsetting residential and retail power usage and supplementing domestic hot water systems.
- Solar calculations are provided in Appendix C.

Electric induction cooktops at Ferrars & York.
Photography by Kim Landy.

Best practice design for Indoor Environment Quality means that building occupants can enjoy a comfortable space with high air quality, adequate daylight and ventilation. Indoor environment quality is affected by building orientation and layout, window sizes and specification, shading devices, products used for construction and fit-out and neighbouring structures.

PROJECT RESPONSE

Assemble Coburg responds to these requirements through fundamental integration of a number of measures. These include:

Ventilation

- Glazing placement and sizing carefully managed to reduce unwanted heat gain and heat loss, while providing natural ventilation to habitable spaces

Natural Daylight

- All apartment living rooms and bedrooms have access to a view and daylight
- Designed to exceed BESS requirements for daylight into habitable rooms and commercial/retail spaces
- Refer Appendix D for the Daylight Assessment

Thermal Comfort

- All apartments will have high quality double glazed windows contributing to high thermal comfort outcomes

Acoustics

- All apartments will be acoustically separated from adjacent apartments and external spaces
- All apartments will have high quality double glazed windows contributing to high acoustic performance

High-performance double-glazed, thermally broken windows.
Photography by Kim Landy.

Material Selection

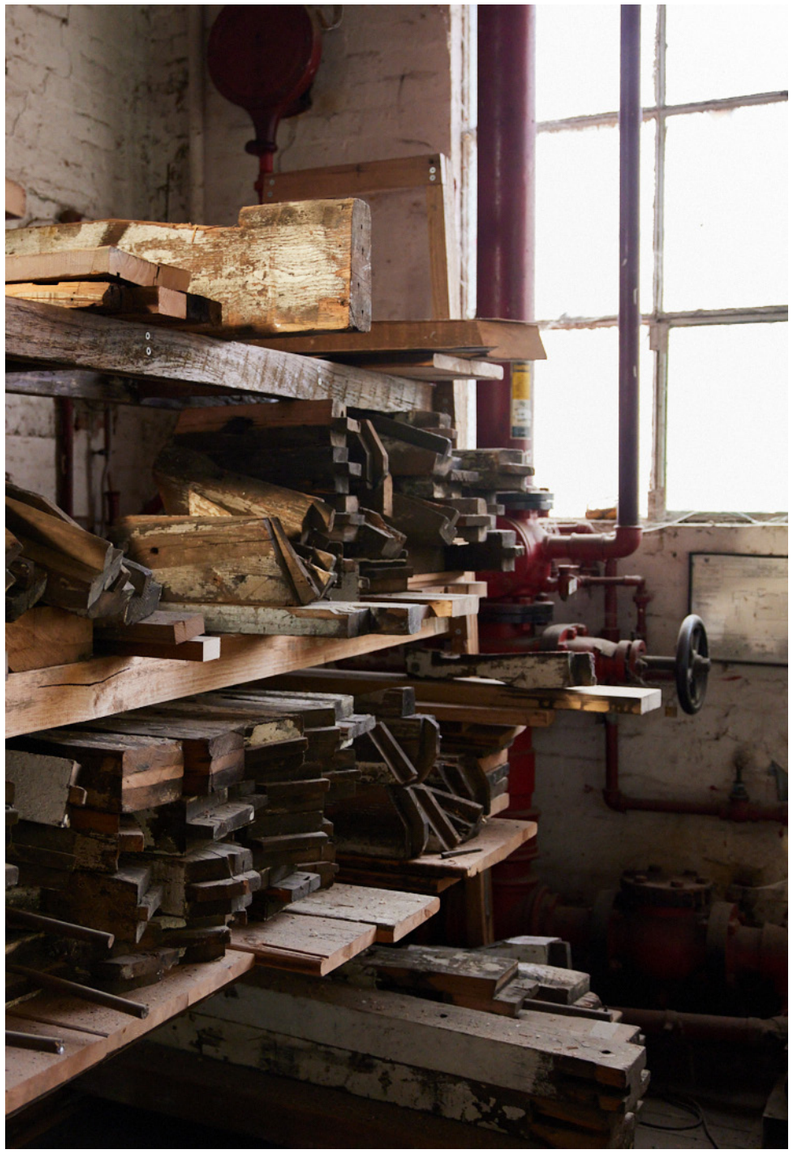
All materials used in construction have an environmental and social impact. This varies dramatically depending on the raw materials used, manufacturing process, the application and ongoing maintenance requirements.

Careful consideration in selecting materials can significantly reduce the overall environmental and social impact of the project. Materials that have lower embodied energy, use recycled content and renewable resources, exclude harmful substances such as Volatile Organic Compounds (VOCs) and are more durable will result in a more sustainable, longer lasting and safer building.

PROJECT RESPONSE

Assemble Coburg responds to these requirements through fundamental integration of a number of measures. These include:

- The selection of materials will focus on durability with the aim of extending replacement times
- During the project's Detailed Design phase all materials will be evaluated regarding their potential toxicity. This will result in the specify of low VOC materials, adhesives and finishes throughout wherever practical
- The project will specify zero to low VOC paints
- The project will minimise the use of MDF
- The project will minimise specification of PVC materials and finishes to limit off gassing exposure
- All structural timber used in construction will be FSC or AFS certified products
- Locally manufactured products will be utilised where possible
- Prioritising low embodied carbon materials
- Utilising recycled materials where possible



Recycled and re-purposed materials at Revival.
Photography by Kim Landy.

Sustainable Waste Management

New buildings and infrastructure generate waste during both construction and operation. With considered thinking and minor changes during design, both can be significantly reduced.

Over 75% of waste generated during demolition and construction is clean excavated material, concrete, bricks and timber which are all highly recyclable.

PROJECT RESPONSE

Similarly, approximately 47% of household waste is organic (including food and garden waste). When this goes to landfill methane emissions are released which account for around 3% of Australia's greenhouse gas emissions. However, if diverted to an organic waste treatment system, this waste can be productively reused in productive gardens while avoiding these methane emissions. Poor waste practices and treatment of the environment in the past have not only led to a degradation of our water, air and land resources but also represent a big financial burden to current and future generations.

Simple design decisions can influence the amount of construction waste being produced and operational waste streams being separated.

Assemble Coburg responds to these requirements through fundamental integration of a number of measures. These include:

Waste Generated During Construction

- The builder and/or waste management contractor's contract will include a requirement for 80% by mass of construction waste to be diverted from landfill (i.e. reused or recycled). Prior to recycling soil, the contractor will ensure a soil test is conducted and soil is only reused in the absence of contamination

Waste During Operation

- Separated waste streams will be built into kitchen joinery, making it easy for residents to divert as much waste from landfill as possible
- Facilities for food, organics, and green waste will be incorporated into the building design
- Innovative biocomposter system to be included in waste facility

Organic food dehydrator at Burwood Brickworks.
Photography by Kim Landy.

The sustainability of transport modes is related to both environmental, social and economic factors. Buildings, infrastructure and behaviour conducive to sustainable transport modes can lead to reduced greenhouse gas emissions, less air pollution, lower living costs and improved health and well-being.

PROJECT RESPONSE

Each project has the capacity to influence the future travel habits of occupants. By making a conscious decision to incentivise sustainable transport modes long lasting benefits can be created for the occupants and wider society.

Assemble Coburg responds to these requirements through fundamental integration of a number of measures. These include:

Access to Public Transport

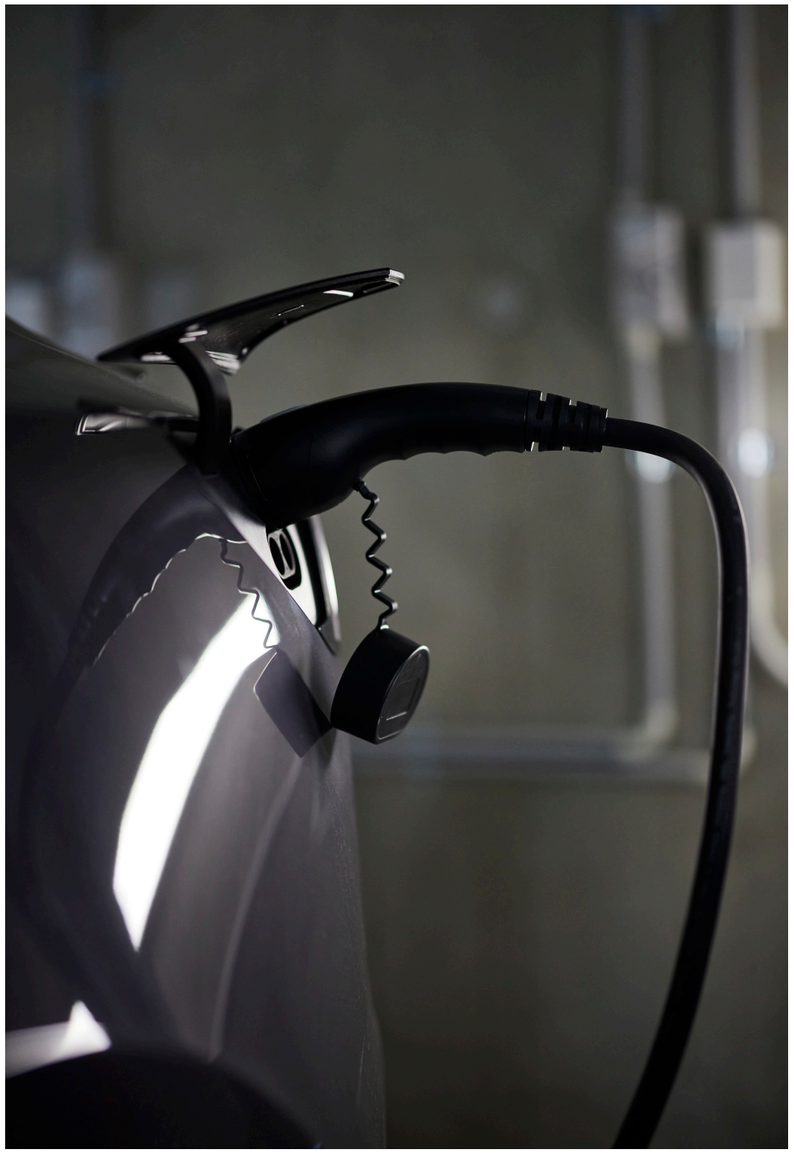
- Proximity to forms of public transport which connect it to the city where metropolitan Melbourne and outer suburbs can be accessed
- The project is a 1-minute walk to the Bell St/Sydney Road tram stop, a 5-minute walk to the Coburg Train Station, and a 2-minute walk to the Coburg PS/Bell St bus stop.

Active Transport

- A total of 610 bike parks are provided in the development with additional bike maintenance facilities for residents
- The site's location means that many services will be accessible on foot or by bicycle
- Residents will be provided with a resident's welcome pack containing detailed information on public transport, cycling routes and local shopping
- A car share scheme will be available to residents, with four carshare parking spots provided

Electric Vehicles

- At least 1 charge point will be provided from day 1



Integrated EV charging in car-stackers.
Photography by Kim Landy.

The impact of urban development on land use and biodiversity, and the best way to have a positive impact on this, varies dramatically according to context. Urban ecology is also critical to human health and to establishing resilience to urban heat impacts and the extreme heat that climate change is already bringing.

PROJECT RESPONSE

Assemble Coburg responds to these requirements through fundamental integration of a number of measures. These include:

- Two outdoor communal roof terraces will be provided for residents to share and enjoy
- An outdoor work and recreation space, shaded to maintain thermal comfort in summer, will be available for residents to use
- The development incorporates a community garden with a garden club workspace incorporating productive trees, hedges and edible plants, for tenants to grow their own food
- The design improves the existing site through incorporation of landscaping, including measures in the private and public realm to assist in minimising local urban heat impacts and preserving biodiversity value
- Locally indigenous, native or adaptive species which will be used to reduce maintenance requirements associated with upkeep, irrigation, and pest management
- Communal functional outdoor spaces will be planted throughout the site, promoting community connection to nature
- A tap and floor waste will be provided on each balcony to encourage plants to be grown on balconies

Rooftop productive gardens at Burwood Brickworks.
Photography by Kim Landy.

Assemble Coburg is adopting a number of innovative strategies and programs that should be used as an exemplar within the City of Merri-Bek.

NET ZERO IN OPERATIONS

Building to target net zero in operations. A key component of this approach is the delivery of highly efficient dwellings (min 7.5-star average NatHERS), coupled with 100% renewable energy supply, in a fossil-fuel free development. On-site solar photovoltaic electricity generation complements this efficiency and zero-carbon energy commitment via a Green Power bulk purchase agreement via the embedded network.

BUILD TO RENT TO OWN

A ‘build to rent to own’ partnership model offering tenure security and an alternative to home ownership by providing short and long term rental accommodation options.

The Assemble Futures model is a ‘rent-with-the-option-to-buy’ model developed to provide a fairer approach to home ownership whereby rental and purchase price are fixed and agreed upfront, so there is clarity around fixed rental costs as residents save towards a home deposit.

BIOCOMPOSTER

A food recycling and dehydration machine will be installed on-site (eliminating waste transport costs and emissions) and reducing the volume of food waste, as well as converting any remaining food waste into a nutrient-rich organic soil enhancer.

This fertiliser can improve soil condition and plant health. In using a dehydrator system, organic waste is diverted from landfill, thereby reducing methane and leachate created from rotting organic matter.

Rooftop productive gardens at The Cape.
Photography by Kim Landy.

Appendix A: Preliminary NatHERS Assessment

Project Number: 1-0504
Version: 04
Date: 29_FEBRUARY 2024

ADVERTISED PLAN

Preliminary NatHERS Report

511-537 Sydney Road, Coburg

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03	06_FEB 2024	DTP Issue	Sujan Dev, Graduate Consultant	David Mahony, Head of Better Buildings
04	29_FEB 2024	Formal DTP Issue	Sujan Dev, Graduate Consultant	David Mahony, Head of Better Buildings

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Project Overview

Project Name	Assemble Communities: Sydney Road, Coburg
Address	511 - 537 Sydney Road, Coburg VIC 3058
Traditional Custodians	Wurundjeri Woi-wurrung
Client	Assemble Communities
Development Manager	Armitage Jones
Architect	Jackson Clements Burrows Architects
Landscape	Mala
Sustainability	HIP V. HYPE
Development Summary	Site Area: 6,630 m² Commercial: 1,051 m² Retail: 103 m² Apartments: 326

Assemble Communities: Sydney Road, Coburg. Image by Jackson Burrows Clements Architects.

Executive Summary

The purpose of this report is to present a summary of the energy modelling process undertaken for the residential development at 511-537 Sydney Road, Coburg, VIC. The project intends to achieve NCC 2019 Amendment 1 Section J compliance through the NatHERS pathway.

SUMMARY OF RESULTS

To achieve NCC 2019 Part J compliance for the Class 2 component of the project, the following must be achieved:

- A total average NatHERS star rating for all Class 2 dwellings of at least 6 stars
- A minimum NatHERS rating of no less than 5 stars for any Class 2 dwelling within the development
- All apartments shall not exceed the cooling load cap of 22 MJ/m2 per annum

Based on the design documentation received to date, the following preliminary NatHERS results have been calculated for the development:

AVERAGE ENERGY INTENSITY (MJ/m²)	AVERAGE STAR RATING	MAXIMUM STAR RATING	MINIMUM STAR RATING	COMPLIANCE ACHIEVED?
78.5	7.6	8.3	6.8	YES

Based on the results above, the Class 2 component of the development at 511-537 Sydney Road, Coburg is compliant with NCC 2019, Section J.

Introduction

This report has been drafted for 511-537 Sydney Road, Coburg and is intended to assess the energy efficiency of the Class 2 dwellings under the NCC 2019 Energy Efficiency Requirements.

HIP V. HYPE (HV.H) has been engaged to assess the development at 511-537 Sydney Road, Coburg against the NCC 2019 Part J requirements for Class 2 developments.

Class 2 developments must adhere to the following:

J0.2 Heating and cooling loads of sole-occupancy units of a Class 2 building or a Class 4 part

The sole-occupancy units of a Class 2 building or a Class 4 part of a building must—

a. For reducing the heating or cooling loads—

i. Collectively achieve an average energy rating of not less than 6 stars; and

ii. Individually achieve an energy rating of not less than 5 stars, using house energy rating software; and

b. For general thermal construction, comply with J1.2; and

c. For thermal breaks, comply with J1.3(d) and J1.5(c); and

d. For compensating for a loss of ceiling insulation, comply with J1.3(c), other than where the house energy rating software used can automatically compensate for a loss of ceiling insulation; and

e. For floor edge insulation, comply with J1.6(c) and J1.6(d); and

f. For building sealing, comply with Part J3

The following report will assess the development against these requirements.

Assemble Communities: Sydney Road, Coburg.
Image by Jackson Burrows Clements Architects.

Project Details

PROJECT SUMMARY

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Architect	Jackson Clement Burrows Architects
Landscape	Mala
Sustainability	HIP V. HYPE Sustainability

Traditional Ownership: We recognise the intrinsic connection of Traditional Owners to Country and value their contribution to managing the land, water, natural and built landscapes.

The Wurundjeri Woi-wurrung people maintain traditional ownership and have shaped the cultural history of the site for thousands of years. They have an inseparable bond with local land and waters.

REFERENCED DOCUMENTATION

The following documents were used to model the 511-537 Sydney Road, Coburg development:

DRAWING NO	DESCRIPTION	REVISION
TP 1-102	Level 1	Rev 3 FEB 2024
TP 1-103	Level 2	Rev 3 FEB 2024
TP 1-104	Level 3	Rev 3 FEB 2024
TP 1-105	Level 4	Rev 3 FEB 2024
TP 1-106	Level 5	Rev 3 FEB 2024
TP 1-107	Level 6	Rev 3 FEB 2024
TP 1-108	Level 7	Rev 3 FEB 2024
TP 1-109	Level 8	Rev 3 FEB 2024
TP 1-110	Level 9	Rev 3 FEB 2024
TP 1-111	Level 10	Rev 3 FEB 2024
TP 1-112	Level 11	Rev 3 FEB 2024
TP 1-113	Level 12	Rev 3 FEB 2024
TP 1-114	Level 13	Rev 3 FEB 2024
TP 1-115	Level 14	Rev 3 FEB 2024 Rev 3 FEB 2024
TP 1-116	Level 15	Rev 3 FEB 2024
TP 1-117	Roof	Rev 3 FEB 2024

MODELLING SOFTWARE

HERO v3.0.1.1 was utilised to assess the development against NatHERS requirements.

Modelling Assumptions

The following section details the assumptions used to develop the NatHERS modelling.

The following table describes the modelling parameter assumptions made for this analysis.

ITEM	ASSUMPTION VALUES	FURTHER COMMENTS
EXTERNAL WALLS	– Lightweight Construction: Stud wall with cladding, and R2.7 insulation – Heavyweight Construction: Brickwork with R2.7 insulation	Walls have been built and assigned based on the following assumptions. Updated plans and wall build up will be reflected in final modelling and may affect the energy rating.
PARTY/INTERNAL WALLS	Lightweight plasterboard stud with R1.5 insulation	
ROOF AND EXPOSED CEILING	– Roof: Metal deck framing, with R4.0 – Exposed Ceiling: R2.0 insulation	
CEILING/FLOOR BETWEEN APARTMENTS	– 250mm ground floor suspended slab – 200mm slab between all levels – No added insulation	
FLOOR ABOVE UNCONDITIONED SPACES	All exposed: R2.0	
GLAZING PERFORMANCE	Window Glazing: Aluminium-framed, double glazing, air fill, high solar gain, low-E clear U: 2.3 SHGC 0.32	Window sizes, types and locations have been modelled based on the GA Plans.

Modelling Results

Based on the modelling assumptions outlined above, the following results have been obtained.

RESULTS SUMMARY

APARTMENT NO.	HEATING LOAD (MJ/M²)	COOLING LOAD (MJ/M²)	TOTAL (MJ/M²)	NATHERS RATING
C.00.02	91.7	2.7	94.4	7.2
C.00.04	78.6	2.7	81.3	7.5
C.00.07	76.9	3.3	80.2	7.6
A.02.01	59.8	4.1	63.9	8.0
A.02.04	54.3	8.2	62.5	8.0
A.02.10	71.3	4.8	76.1	7.7
A.04.01	51.8	5.2	57.0	8.2
A.04.06	43.7	8.7	52.4	8.3
A.04.14	74.1	3.6	77.7	7.6

Modelling Results

Based on the modelling assumptions outlined above, the following results have been obtained.

RESULTS SUMMARY

APARTMENT NO.	HEATING LOAD (MJ/M²)	COOLING LOAD (MJ/M²)	TOTAL (MJ/M²)	NATHERS RATING
A.07.01	86.8	8.0	94.9	7.1
A.07.03	73.4	7.6	81.0	7.5
A.07.12	94.2	12	106.2	6.8
A.07.14	80.5	8.0	88.5	7.3
A.11.01	48.5	12.7	61.3	8.1
A.11.08	66.8	7.5	74.3	7.7
A.15.03	57.4	2.6	60.0	8.1
A.15.06	85.4	1.4	86.8	7.4
B.02.03	52.0	12.4	64.4	7.9
B.02.06	67.7	5.3	73.1	7.7

Modelling Results

Based on the modelling assumptions outlined above, the following results have been obtained.

RESULTS SUMMARY

APARTMENT NO.	HEATING LOAD (MJ/M²)	COOLING LOAD (MJ/M²)	TOTAL (MJ/M²)	NATHERS RATING
A.07.01	69.7	7.2	76.9	7.6
A.07.03	69.9	6.5	76.4	7.7
A.07.12	71.1	16.6	87.8	7.3
A.07.14	66.8	18.6	85.4	7.4
A.11.01	60.5	5.5	66.0	7.9
A.11.08	63.9	6.1	70.0	7.8
A.15.03	88.0	10.7	98.8	7.0
A.15.06	87.2	14.4	101.6	6.9
B.02.03	68.3	11.9	80.2	7.6
B.02.06	71.8	9.0	80.8	7.5
B.11.06	83.6	9.2	92.8	7.2
TOTAL AVERAGE	70.5	7.8	78.4	7.6

Modelling Results

Based on the results, the Class 2 component of the development at 511-537 Sydney Road, Coburg development is compliant with NCC 2019, Section J.

RESULTS SUMMARY

AVERAGE ENERGY INTENSITY (MJ/M2)	AVERAGE STAR RATING	MAXIMUM STAR RATING	MINIMUM STAR RATING	COMPLIANCE ACHIEVED?
78.4	7.6	8.3	6.8	YES

Conclusion

The Class 2 component of the 511-537 Sydney Road, Coburg development was modelled using HERO software in order to confirm compliance to NCC 2019 Section J.

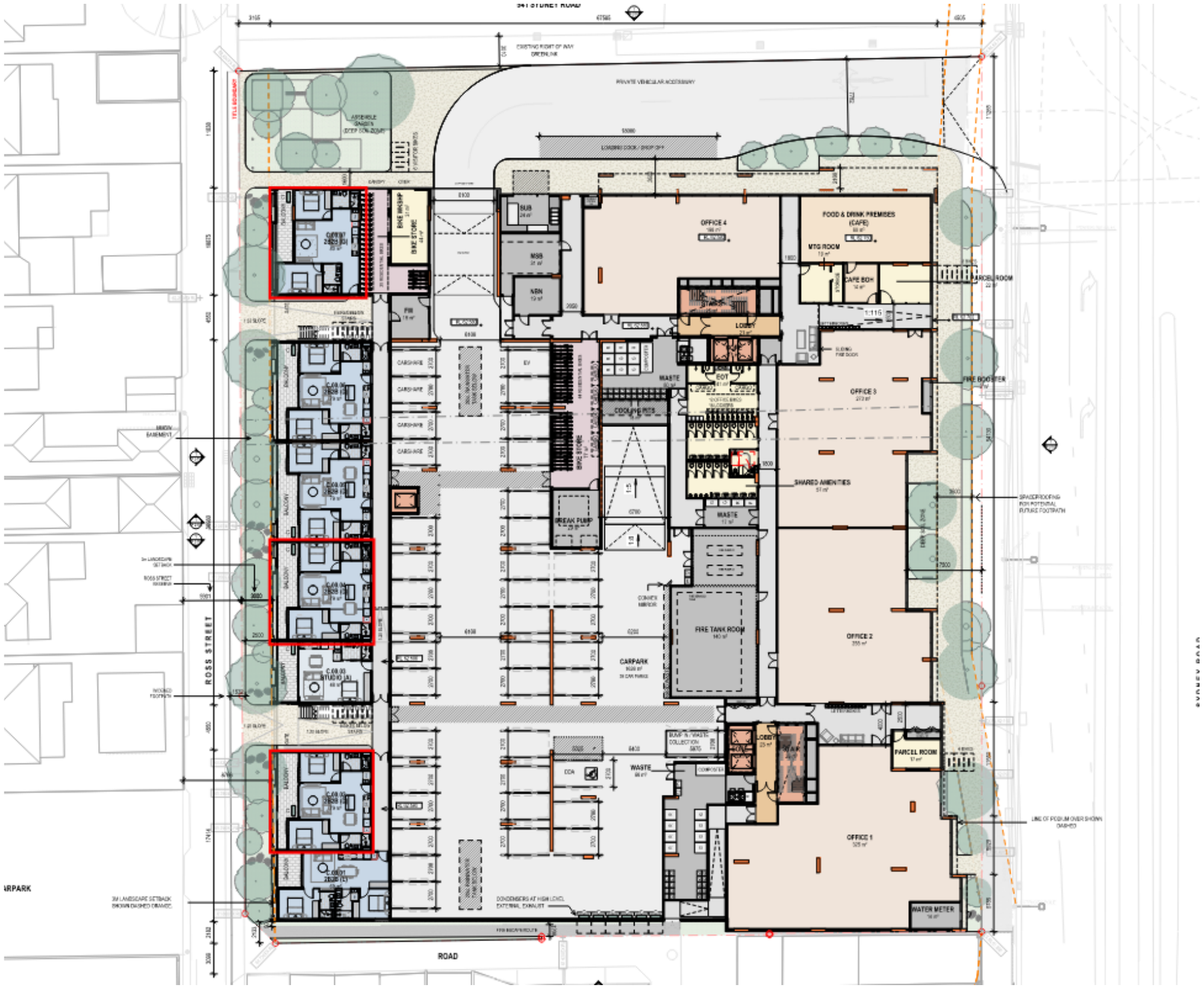
The NatHERS modelling results generated from the design documentation received to date confirms that the Class 2 component of the development complies with the NCC 2019 Section J requirements.

Assemble Communities: Sydney Road, Coburg. Image by Jackson Burrows Clements Architects.

Appendix A: Modelled Dwellings

Modelled Dwellings
Ground

ADVERTISED PLAN

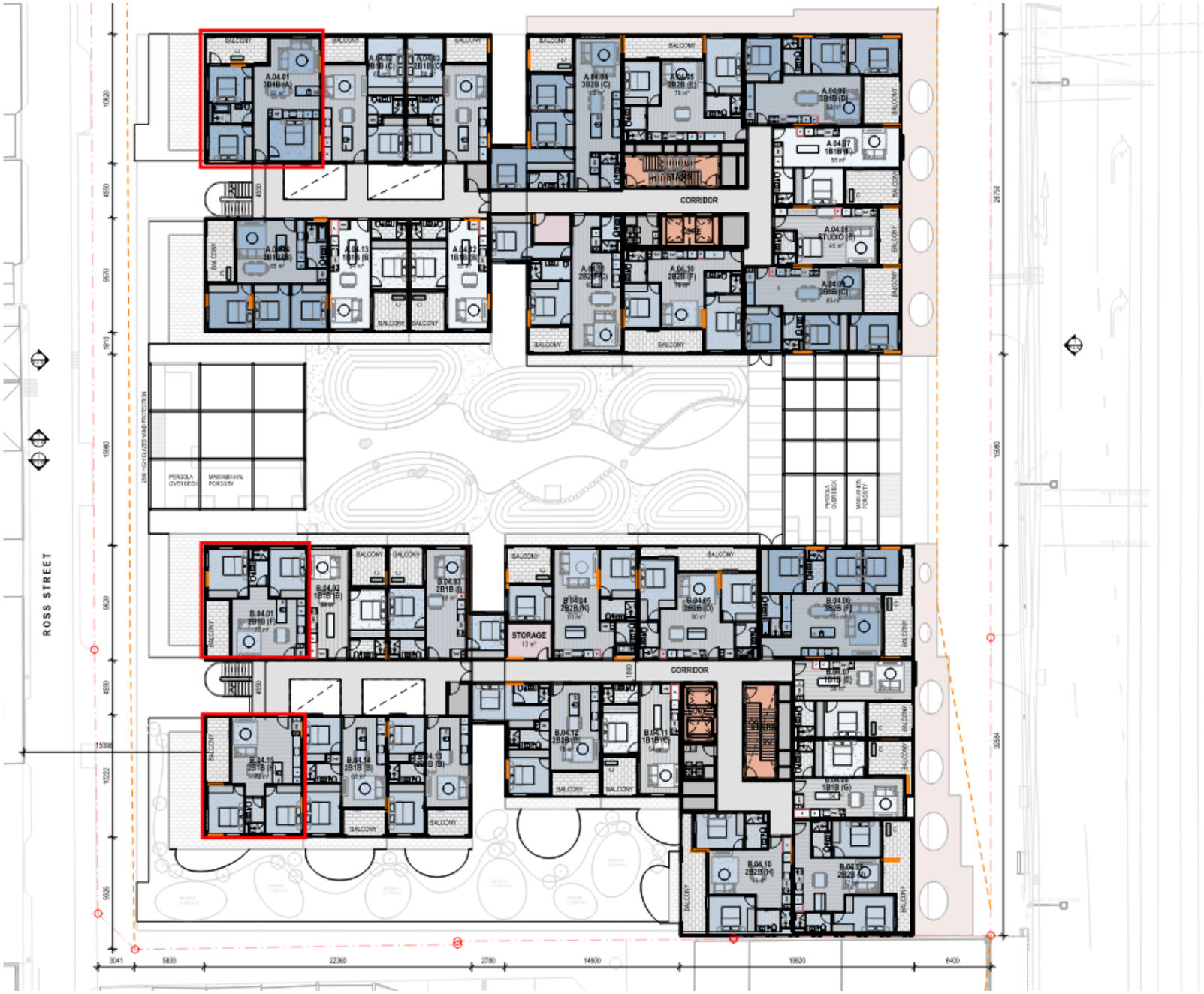


Modelled Dwellings
Level 02

ADVERTISED PLAN

Modelled Dwellings
Level 04

ADVERTISED PLAN

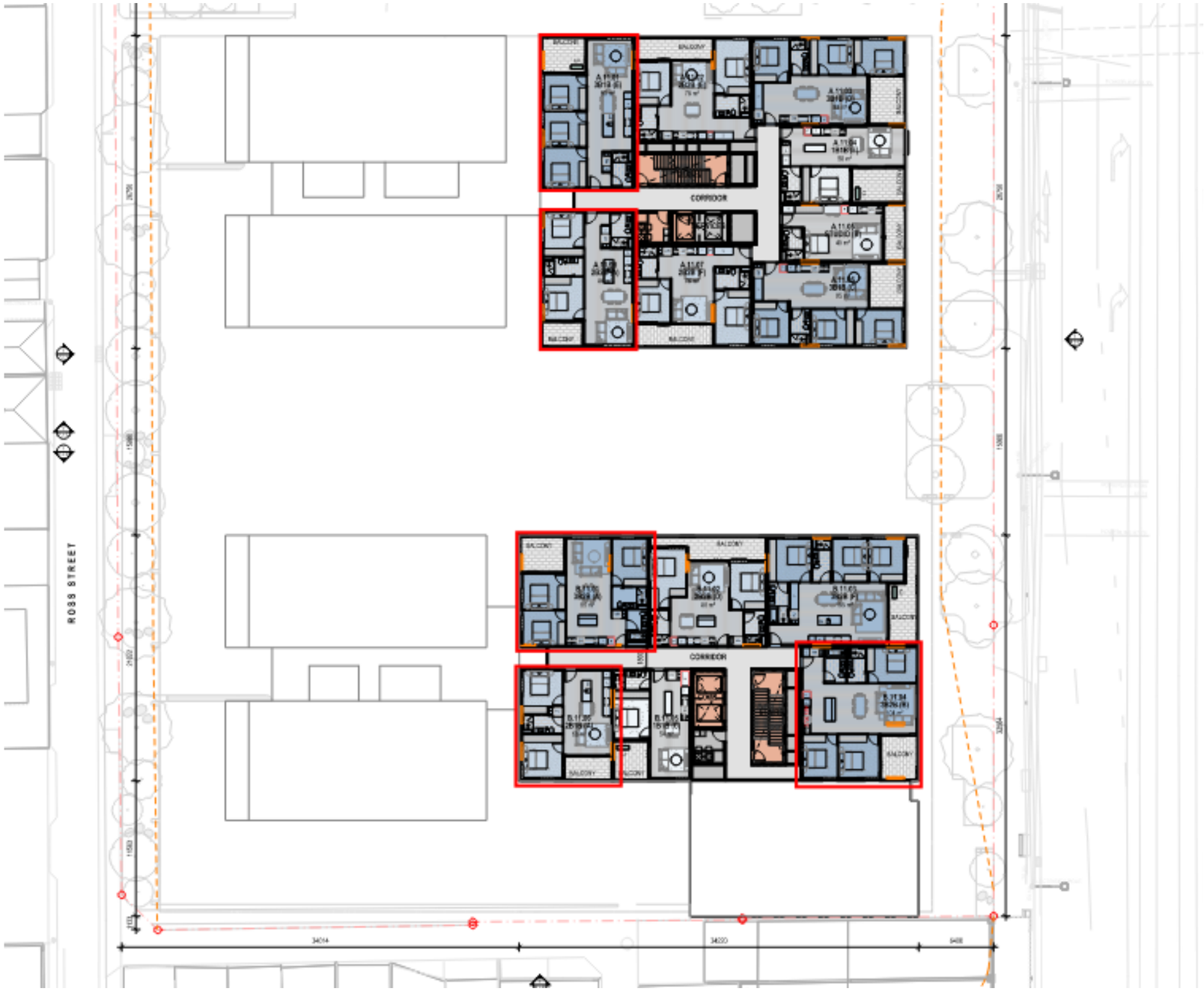


Modelled Dwellings
Level 07

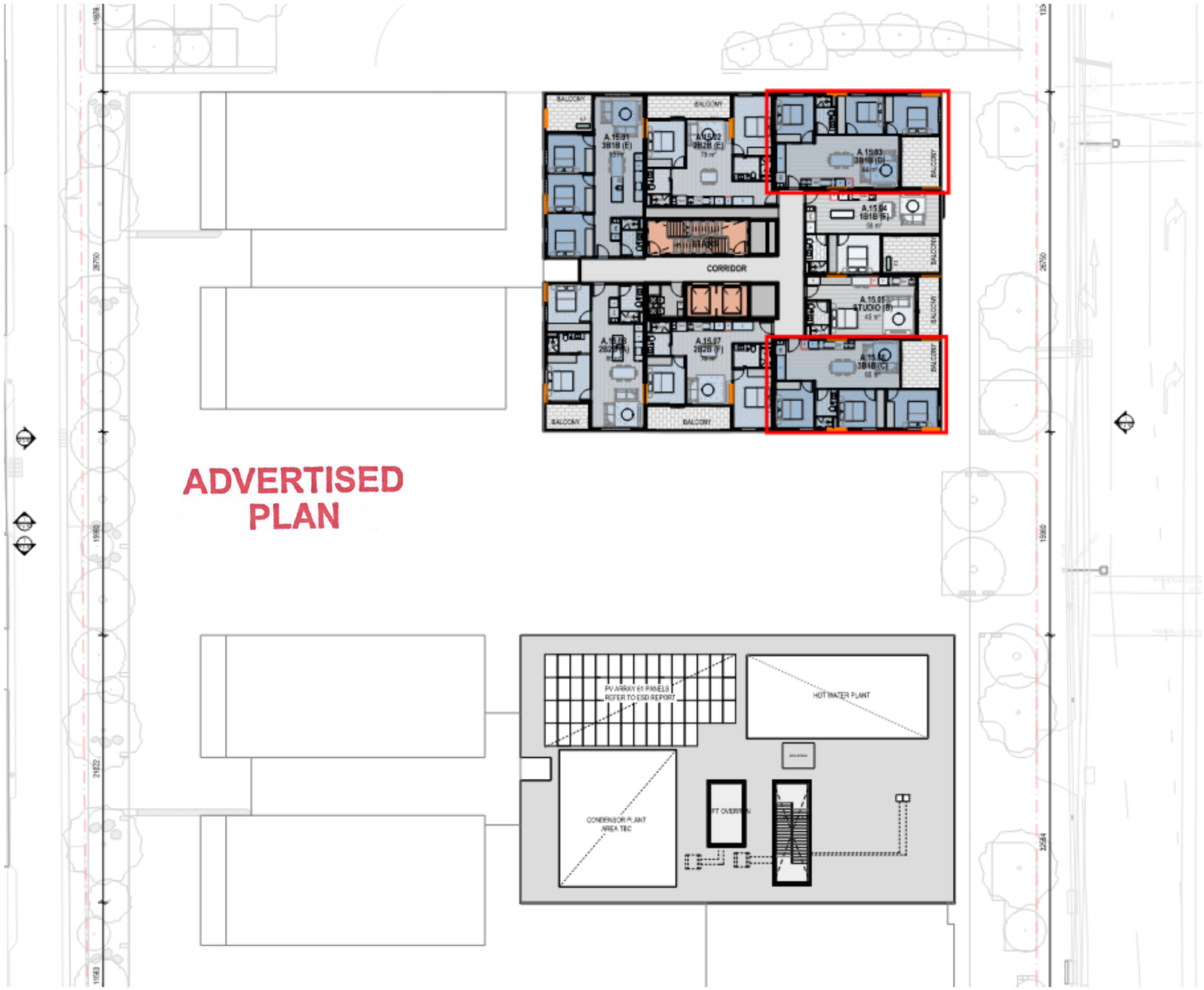
ADVERTISED PLAN

Modelled Dwellings
Level 11

ADVERTISED PLAN



Modelled Dwellings
Level 15



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Appendix B: Water Sensitive Urban Design

Project: 1-0504
Version: 06
Date: 29_FEBRUARY 2024

ADVERTISED PLAN

Water Sensitive Urban Design

511 - 537 Sydney Road, Coburg

HIP V. HYPE

Introduction

This report provides an overview of the Water Sensitive Urban Design (WSUD) strategy for the Sydney Road, Coburg development within the municipal boundaries of the City of Merri-bek. This is in response to Clause 15.01-2L-05– Environmentally Sustainable Development, Clause 56.07 Integrated Water Management and Clause 56.08 Site Management.

CLAUSE 15.01-2L-05 ENVIRONMENTAL SUSTAINABLE DEVELOPMENT

Integrated Water Management

- Reduce total operating potable water use through appropriate design measures such as water efficient fixtures, appliances, equipment, irrigation and landscaping.
- Encourage the appropriate use of alternative water sources (including greywater, rainwater and stormwater).
- Incorporate best practice water sensitive urban design to improve the quality of stormwater runoff and reduce impacts on water systems and water bodies.

CLAUSE 56.07-4 STORMWATER MANAGEMENT OBJECTIVES

The overarching objective is:

- To minimise damage to properties and inconvenience to residents from stormwater
- To ensure that the street operates adequately during major storm events and provides for public safety
- To minimise increases in stormwater and protect the environmental values and physical characteristics of receiving waters from degradation by stormwater
- To encourage stormwater management that maximises the retention and reuse of stormwater
- To encourage stormwater management that contributes to cooling, local habitat improvements and provision of attractive and enjoyable spaces

CLAUSE 56.08 SITE MANAGEMENT

The overarching objective is:

- To protect drainage infrastructure and receiving waters from sedimentation and contamination
- To protect the site and surrounding area from environmental degradation or nuisance prior to and during construction of subdivision works
- To encourage the re-use of materials from the site and recycled materials in the construction of subdivisions where practicable

Standard C26

A subdivision application must describe how the site will be managed prior to and during the construction period and may set out requirements for managing:

- Erosion and sediment
- Dust
- Run-off
- Litter, concrete and other construction wastes
- Chemical contamination
- Vegetation and natural features planned for retention

Rainwater Tank Flow Modelling

The rainwater tank flows have been modelled using daily rainfall data, with a methodology that closely estimates usage due to occupants, inflows from rainfall events (actual data) and other relevant inputs to confirm potential for rainwater contribution.

TANK FLOW MODELING

This model also includes landscape irrigation, and has the potential to include other systems such as greywater and blackwater, though these are not relevant to this project. All relevant inputs and factors are shown below.

Key Information:

ITEM	SUMMARY
Development Summary	326 residential apartments: 23,475m², 25m² per person Commercial: 1,051m², 10m² per person Retail: 103.4m², 2m² per person
Usage Type	WC: 2 half flush, 0.5 full flush per day Basin: 3 uses per day for 0.15 mins Shower: 1 use per day for 5 mins Laundry: 1 kg/day per person, 8kg/load and 70L per load Kitchen: 6 tap uses per day for 1.0 mins plus 1 dishwasher use per day Consumed: 5 cups per person per day
Irrigation	Landscape Areas: 582m² 10% undercover; Crop co-efficient: 0.5; Subsurface drip-type irrigation
Rainwater Reuse	Rainwater is used to flush toilets throughout the residential component of the building and irrigation of ground floor landscaping.

Productive rooftop gardens at Burwood Brickworks. Photography by Kim Landy

Rainwater Tank Efficiency

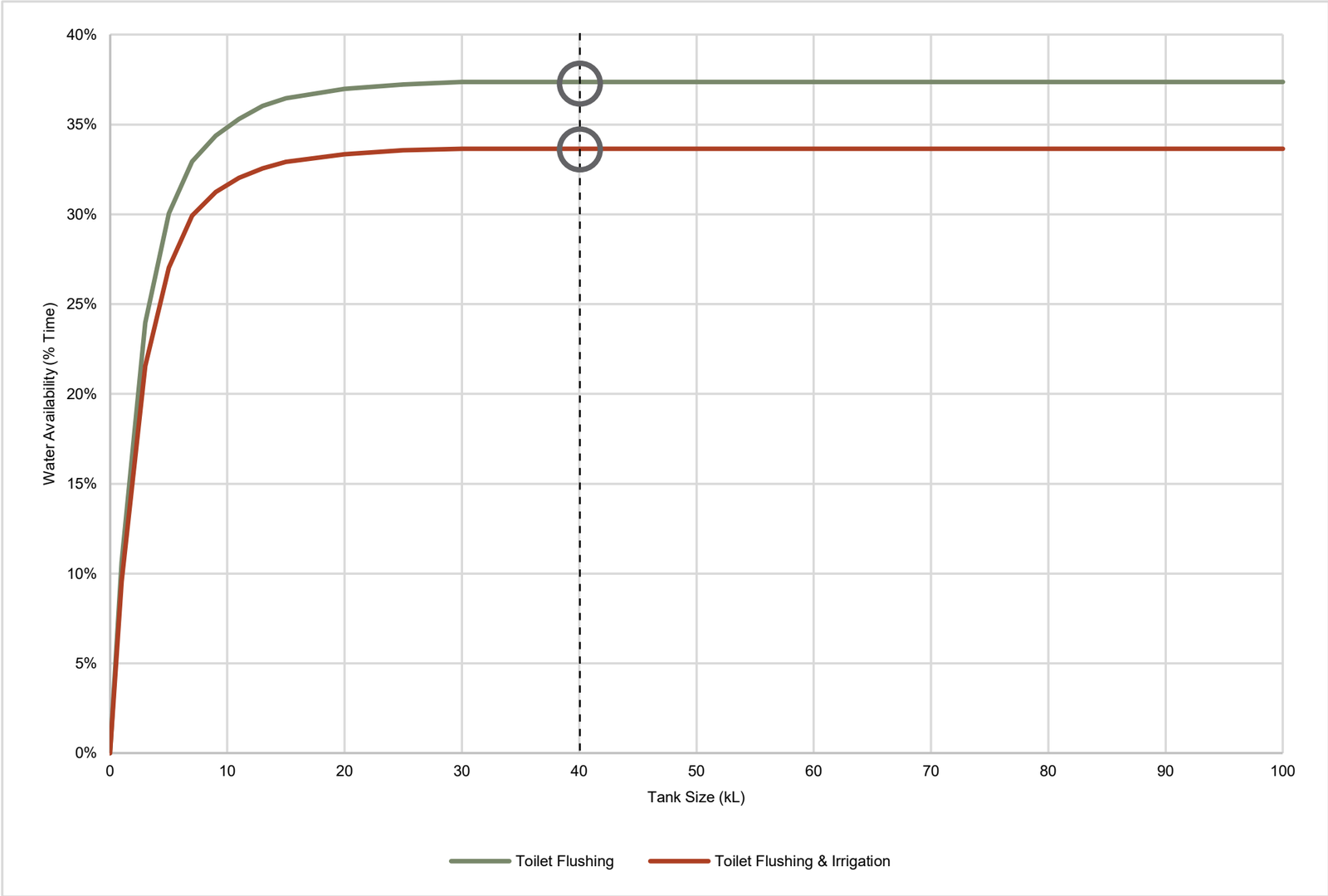
The rainwater tank efficiency has been assessed under two reuse strategies; Residential toilet flushing only and residential toilet flushing plus irrigation of the ground floor landscape.

TANK EFFICIENCY

The assessment shows that the development rainwater catchment potential is sufficient to provide the entire building with reliable flushing water and ground floor irrigation.

The most optimal reuse demand strategy is to provide rainwater for flushing in the residential component of the development and ground floor irrigation systems. Installation of a 40kL tank (or 2 x 20kL tanks) provides ample storage for this application.

The tank will also be fitted with a first flush device, meter, tank discharge control and water treatment with associated power and telecommunications equipment.



Stormwater Calculations

Melbourne Water's Stormwater Treatment Objective – Relative Measure (STORM) Calculator is a simple analysis method for stormwater treatment and water sensitive urban design (WSUD). It rates the performance of treatment measures such as rainwater tanks, wetlands, and infiltration systems relative to best practice targets, and calculates a weighted average score. A STORM score of 100 or greater indicates that treatment measures are of sufficiently high standard.

In order to demonstrate compliance, a score of 100% must be achieved using the Stormwater Treatment Objective – Relative Measure (STORM) tool, demonstrating that the following has been achieved:

- Suspended solids: 80% retention of typical urban load
- Total Nitrogen: 45% retention of typical urban load
- Total Phosphorous: 45% retention of typical urban load
- Litter: 70% reduction of typical urban load

A provisional STORM rating has been carried out, based on the following WSUD measures:

- Collection from non-trafficable roof area of 2,978m^2
- Storage in 2x20kL rainwater tanks.
- The rainwater collected from these surfaces require enhanced treatment before re-use.
- The rainwater collected will be reused for toilet flushing in the residential component of the building along with ground level landscape irrigation
- Any overflow from the rainwater tank during extreme rainfall events will be diverted to an additional on-site detention tank.

Note: No rainwater is to be collected and re-used from planter boxes or landscaped areas under any circumstance.

The development achieves a STORM rating of 100%.

STORM RATING

TN (%)	TP (%)	TSS (%)	GP (%)	FLOW REDUCTIONS (%)
123.1	134.6	101.1	142.9	36.2

OVERALL REDUCTION

	TN (%)	TP (%)	TSS (%)	GP (%)	FLOW (%)
ACHIEVED REDUCTION	55.6	73.6	84.8	100.0	14.1
TARGET REDUCTION	45	45	80	70	N/A

Stormwater Collection Areas

ADVERTISED PLAN

This section provides the rainwater collection area mark-ups used for STORM calculations. Different colour highlights are used to denote different types of areas.

- Non-Trafficable Roof: 2,978m²
- Trafficable Terraces & Planters: 2,013m²
- Deep Soil Planting: 604m²
- Permeable Pavement: 152m²
- Ground Plane Impermeable: 885m²

Total site area: 6,632m²

Methodology

CATCHMENT PARAMETERS

This section outlines the modelling parameters used for each of the catchment areas. These are the default parameters preloaded into the MUSIC software. Melbourne Water guidelines dictate that the default parameters should be used for Rainfall-runoff, Total Suspended Solids, Total Phosphorous and Total Nitrogen for roof and mixed catchment areas.

Fraction Impervious

- Mixed Roof & Terrace Areas: 44%
- Clean Roof Areas: 47%
- Pervious Areas: 9%

Rainfall Runoff Parameters

Impervious Area Properties

- Rainfall Threshold: 1.00 mm/day

Pervious Area Properties

- Soil Storage Capacity: 120mm
- Initial Storage: 25% of capacity
- Field Capacity: 80%
- Infiltration Capacity Co-efficient: 200.0
- Infiltration Capacity Exponent: 1.0

Groundwater Properties

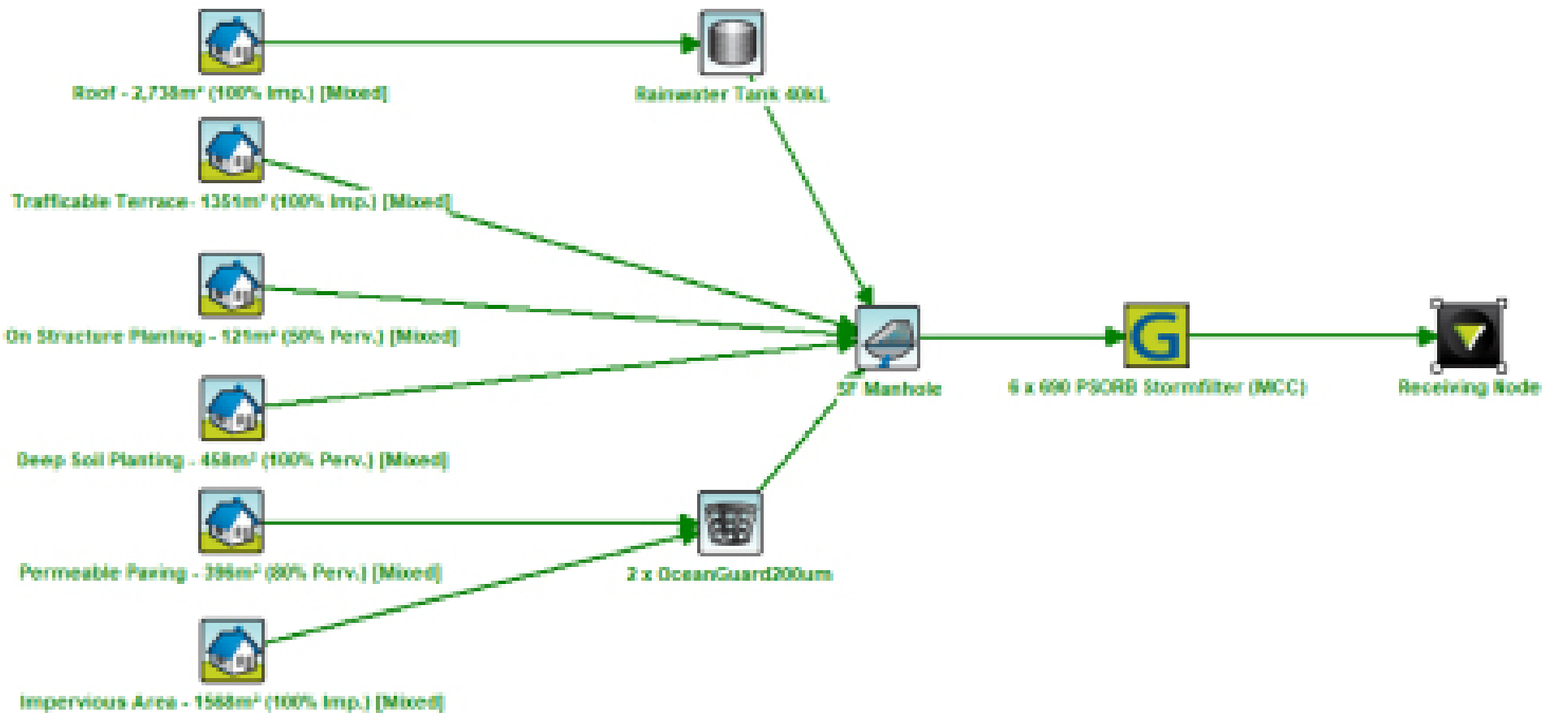
- Initial Depth: 10mm
- Daily Recharge Rate: 25%
- Daily Baseflow Rate: 5%
- Daily Seepage Rate: 0%

WEATHER DATA

The weather station that has been chosen to model this site with is Melbourne City as per the Melbourne Water Guidelines for the use of MUSIC.

MODEL PLAN

A model has been developed to assess the pollution reduction using MUSIC. Adjacent is a screenshot of the plan view to demonstrate how the strategy has been implemented.



Treatment Train

ADVERTISED PLAN

MODEL PLAN

As demonstrated, the treatment train proposed for the site stormwater run-off consists of the following measures:

- The total rainwater reuse catchment area is 2,978m²
  - Rainwater collected from these areas will be stored in a total capacity of 40kL (minimum) rainwater tank
  - Collected rainwater will be reused for all toilet flushing and irrigation on the ground level
- The total non-reuse collection area is 2,898m²
  - Collected water will be directed to an end of line treatment device prior to being discharged to the LPOD

WEATHER DATA

The weather station that has been chosen to model this site with is Melbourne Airport as per the Melbourne Water Guidelines for the use of MUSIC.

RAINWATER TANK PARAMETERS

The rainwater tank has been modelled with the following parameters:

- 40kL storage capacity
- Re-use demand of 2,090 L/day calculated for toilet flushing and irrigation has been determined using the Green Star Potable Water Calculator

Additionally the level of occupancy and usage of the re-use demands is based on the NSA and NLA for the development:

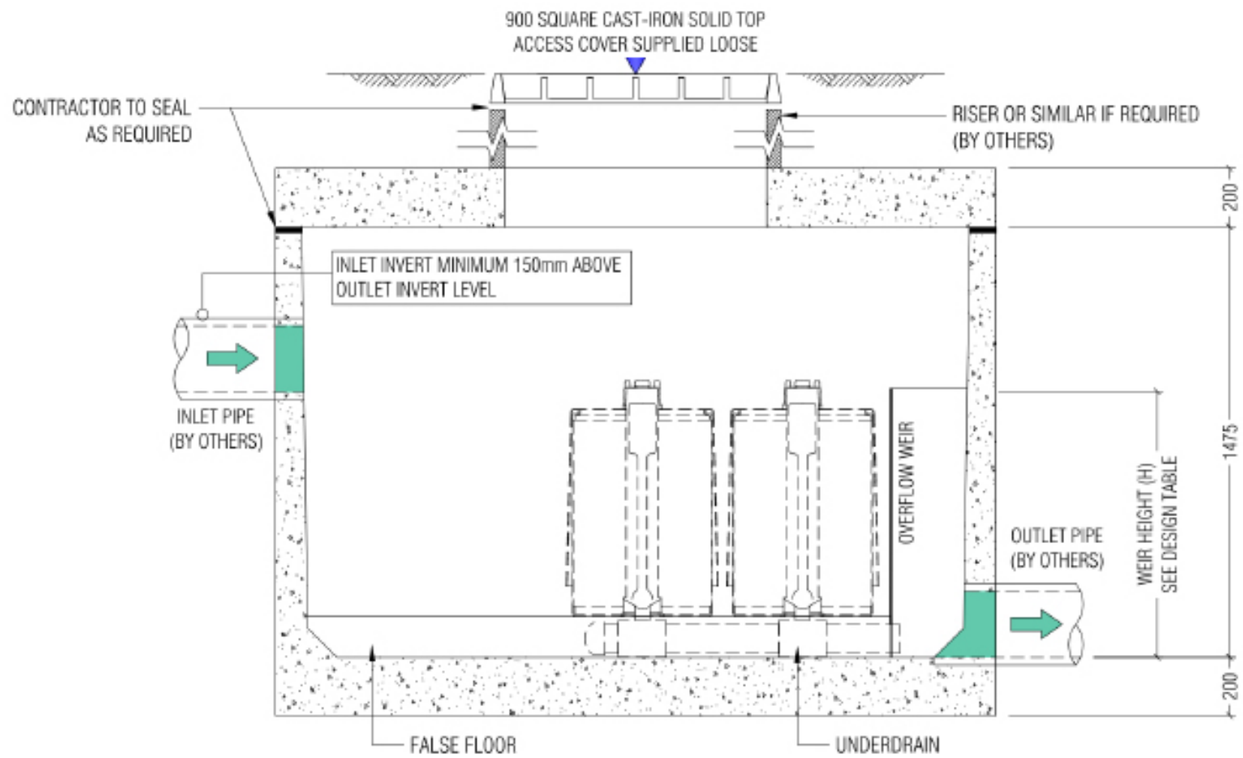
- Commercial (Retail & Office) NLA of 1,155m²

STORMWATER QUALITY IMPROVEMENT DEVICE (SQID) DETAILS

The proposed SQID system for the project is an OceanProtect system containing OceanGuards as pre-treatment within the permeable and impervious areas. The Tall (690) PSorb cartridge StormFilter is used for tertiary treatment and is to be installed within a DN2250 precast manhole.

Preliminary Design

- 2 x OceanGuards with 200µm mesh bags (OG-200).
- 6 x Tall(690) PSorb StormFilters, installed within a DN2250 precast manhole



Results

TREATMENT TRAIN EFFECTIVENESS

The results generated from the model are shown in the table to the right, taken from the MUSIC modelling software.

The Table also compares the results obtained from the MUSIC simulation with the best practice performance objectives.

This demonstrates that the proposed stormwater management design meets all the reduction targets stipulated by Melbourne Water Best Practice Guidelines.

Furthermore, the project achieves both the flow volume and pollutant reductions required to be awarded the Credit Achievement target in the Waterway Protection Credit of Green Star Buildings.

ITEM	COUNCIL REQUIREMENT	% REDUCTION RESULTS
Flow (ML/annum)	N/A	14.1%
Total Suspended Solids (kg/annum)	80%	84.8%
Total Phosphorus (kg/annum)	45%	73.6
Total Nitrogen (kg/annum)	45%	55.6
Gross Pollutants (kg/annum)	70%	100%

Rainwater Tank Maintenance Plan

This manual lists the key tasks required to maintain a domestic rainwater tank and the recommended frequency of each task. This manual can be submitted with planning permit applications for developments that include the installation of a domestic rainwater tank. Once endorsed, the property owner is responsible for continuous implementation of rainwater tank maintenance, in accordance with the guidance in this manual.

Rainwater tanks are an exceptional tool for environmental protection. They collect and store roof water for use inside and outside the home. This simultaneously reduces the demand on our precious potable mains water and limits the amount of stormwater pollutants that enter our sensitive Bay.

Maintenance of rainwater tanks is relatively easy however it is important to do the following key tasks to ensure the quality of water is high:

- Stop leaf litter and debris entering the tank.
- Prevent bird droppings and dust building up in the gutters.
- Prevent mosquitoes and other animals entering the tank.

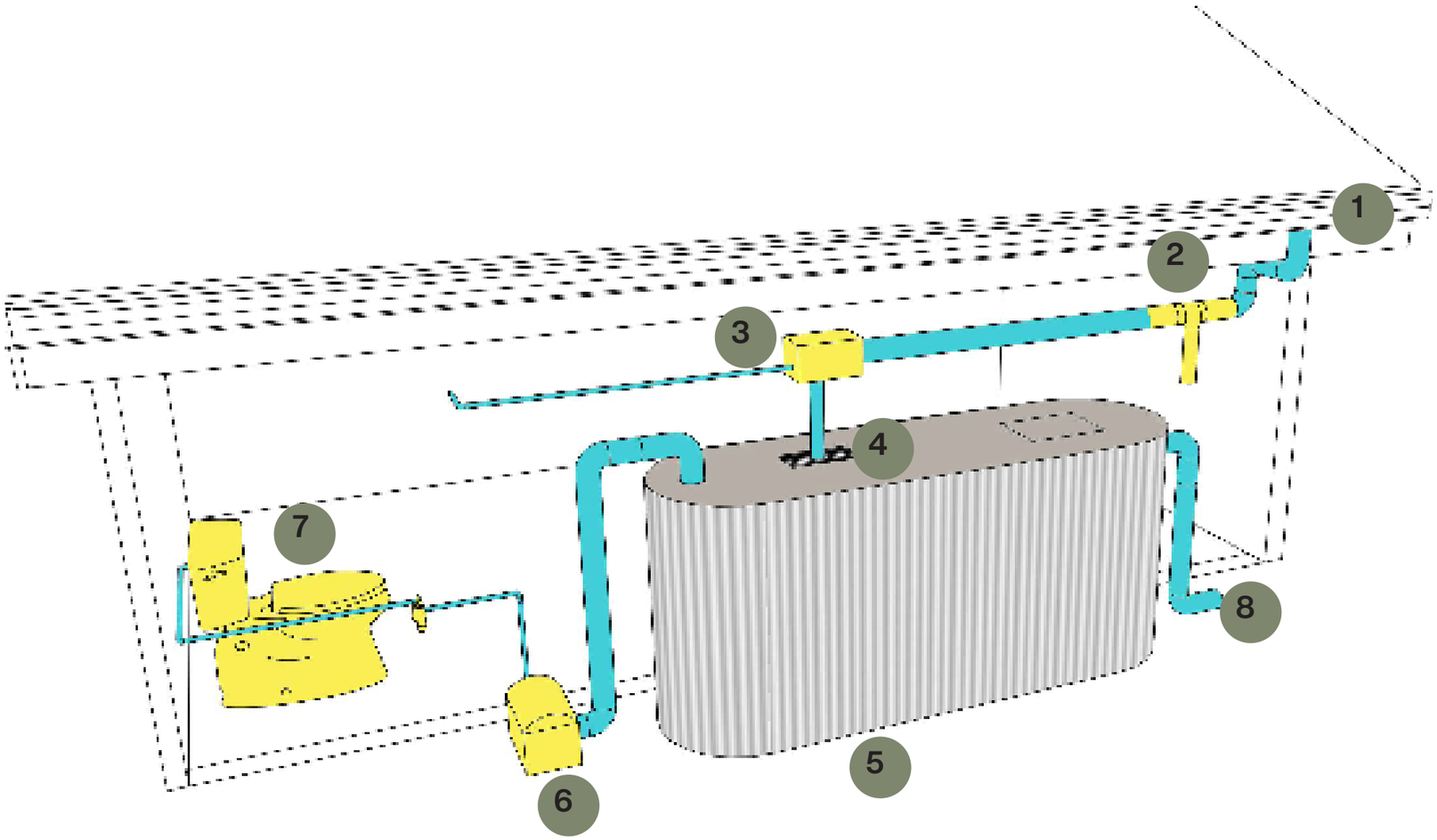
KEY INFORMATION

Tank connected to	Toilet flushing, irrigation
Tank location	Below Ground Level
Drawing number	TP 1-102
Tank construction date	TBC
Date of final building inspection	TBC
Tank volume	2 x 20kL

Rainwater connections to balcony taps at Ferrars & York.
Photography by Kim Landy.

Rainwater Tank Maintenance Plan

1. Rainwater enters the tank from the roof gutters - keeping these clear from leaf litter and debris will improve the quality of water entering the tank.
2. Rainwater passes through a first flush diverter, this device reduces the risk of contaminants (bird droppings etc.) entering the tank.
3. This system has internal household uses therefore a potable mains backup will be required to ensure that water is always available.
4. Collected rainwater flows through a protective mesh cover before entering the tank. The mesh filters sediment and debris from the water and keeps mosquitoes and other animals out of the tank.
5. Rainwater is stored in the tank until used.
6. A pump transfers rainwater from the tank into the distribution network. At this point, the rainwater is passed through a treatment system, including filters and UV light to ensure it is fit for use in the building.
7. Pipes and taps are used to distribute rainwater for internal (e.g. toilet and laundry) uses and external (e.g. garden).
8. When the tank is full, water is discharged to the local stormwater network via the tank overflow system.



Rainwater Tank Maintenance Plan

The property owner is responsible for checking the maintenance items in this checklist at the recommended frequency at the bottom of the table. The maintenance log at the bottom of the page should be filled in once each maintenance check is complete. Upkeep of this maintenance log should continue throughout the life of the rainwater tank.

ADVERTISED PLAN

MAINTENANCE CHECKLIST

Item	Rainwater tank element	Inspection Item	Y/N	Likely maintenance task
1	Roof gutters and downpipes	Is there leaf litter or debris in the gutters?		Remove by hand and dispose responsibly.
2	First flush diverter	Is there anything blocking the first flush diverter (leaves etc)?		Remove by hand and dispose responsibly.
3	Potable mains back up device	Is the potable mains back up switch operating correctly?		Repair or replace device. Consider a manual switching device.
4	Mesh cover	Has the mesh cover deteriorated or have any holes in it?		Replace mesh cover.
5	Tank volume	Is there large amounts of sediment or debris sitting in the bottom of the tank, reducing the volume available in the tank to store water?		Remove sediment and dispose responsibly.
6	Pump	Is the pump working effectively? Have you heard it on a regular basis?		Check the potable mains back up is not permanently on. Repair or replace pump.
7	Pipes and taps	Are pipes and taps leaking?		Repair as needed.
8	Overflow	Is the overflow clear and connected to the stormwater network?		Remove blockages and/or restore connections to stormwater.
9	Supporting base	Are there any cracks or movement?		Empty tank to reduce weight then repair base.

MAINTENANCE LOG

Maintenance Date	Maintenance Undertake

Construction Site Management Plan

A stormwater pollution reduction strategy will be contractually required to be adopted by the Main Contractor as part of its overall Environmental Management Plan (EMP). The strategy should prevent construction debris and littering entering the stormwater systems. The EMP will be required to specifically address the following in respect to stormwater:

OBJECTIVES

a. No impact on offsite surface or ground water due to construction activities

b. Site stormwater to be managed such that no contaminated water is discharged from site

GENERAL

a. Materials and waste to be stored at least 2m away from drainage lines

b. All inadvertent chemical spills to be cleaned up immediately

c. Application and inclusion of a range of mitigation measures for soil depositing on roads, stormwater, dust and noise

STORMWATER

a. Installation of hay bales around stormwater drains to minimise sediment entering stormwater

b. Installation of crushed rock to frequently used tracks / haul roads that may produce sediment

Construction site visit at Ferrars & York. Photography by Kim Landy.

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PLAN

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Appendix C: Solar PV Calculations

Solar PV Calculations

The solar photovoltaic system will be located on the roof, ensuring uninterrupted solar access. The electricity generated will offset residential power usage and supplement centralised services energy demands.

ADVERTISED PLAN

SYSTEM REQUIREMENTS

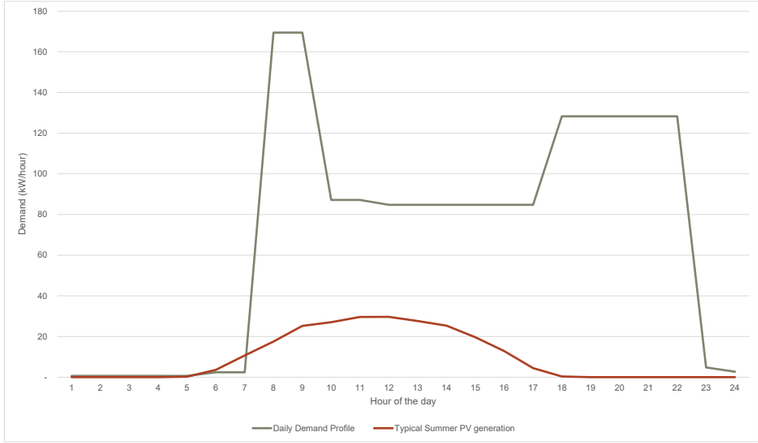
A 60 kWp PV installation consisting of approximately 109 x 550W panels, each panel measuring roughly 1134mm x 2278mm shall be installed.

The PV array is proposed to be installed in an northerly direction to maximise generation and more closely match the expected demand profile of the residential apartments.

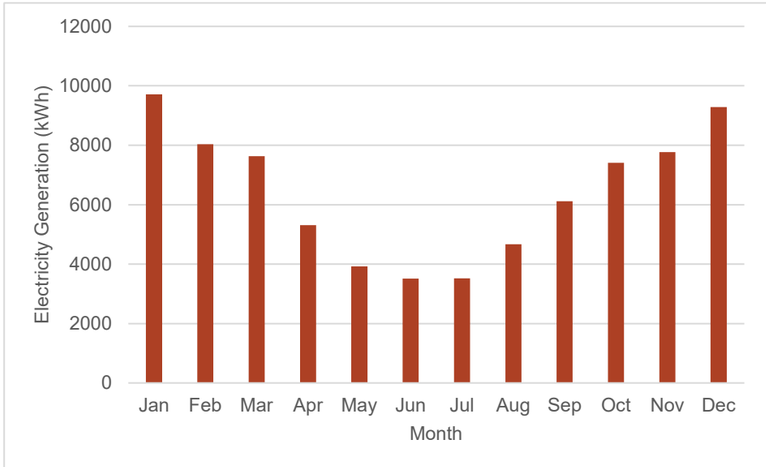
Final PV capacity will be confirmed following further development and spatial coordination between services and structure.

Proposed Installation	109 x 550W photovoltaic panels (60.0kWp) North Building Rooftop: 64 x 550W (35.2kWp) South Building Rooftop: 45 x 550W (24.8kWp)
Panel Orientation	North orientation, 8.4 degree azimuth
Panel Incline	10 degrees
Inverters	2 x 25kW string inverter
System Losses	14.08%
Annual Generation	76,896 kWh/annum

The chart below outlines the anticipated daily electricity demand profile for common area lighting, lifts and domestic hot water, overlaid with a typical peak summer generation of the proposed PV array. This demonstrates the PV array is sized so as to be 100% utilised at time of use, negating the requirement for additional onsite battery storage.



Daily summer energy demand profile and solar generation profile.



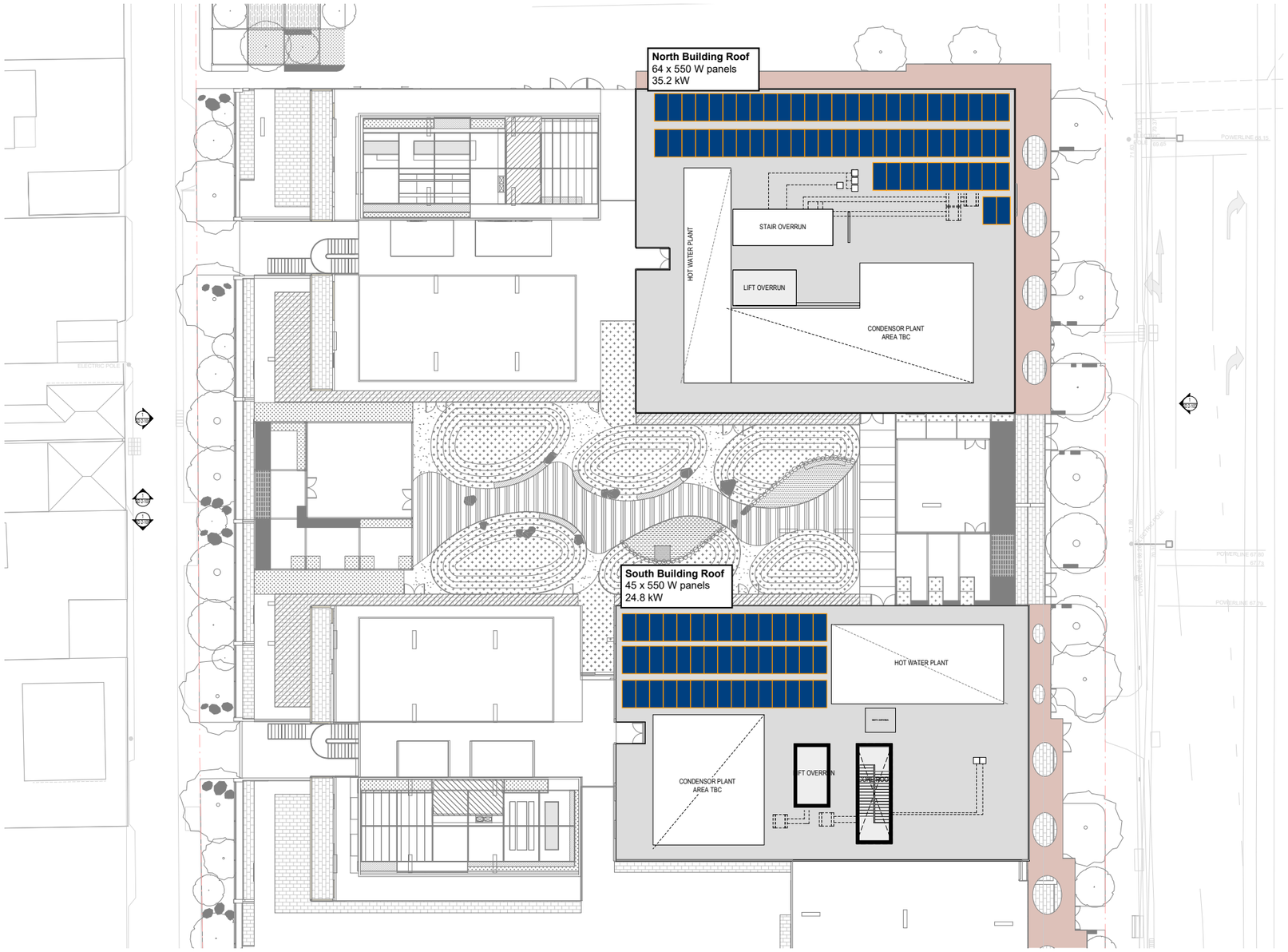
Typical monthly renewable energy generation for the project.

Proposed Rooftop Layout

ADVERTISED PLAN

The image adjacent shows the rooftop PV layout for Sydney Road, Coburg. The layout has been designed so as to avoid overshadow from rooftop equipment and services.

The rooftop PV layout has been included in architectural design documentation, drawing reference TP 1-117 and TP 1-118.



Proposed Rooftop PV layout.

Appendix D: Preliminary Daylight Assessment

Project: 1-0504
Version: 03
Date: 29_FEB 2024

ADVERTISED PLAN

Daylight Report

511-537 Sydney Road, Coburg

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We seek to partner with those who are willing to think strategically to achieve better. We lead, collaborate and support others to deliver impact and build Better Cities and Regions, Better Buildings, and Better Businesses.

ADVERTISED PLAN

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VERSION	DATE	ISSUE	PREPARED BY	APPROVED BY
01	22_DEC 2023	For Client Review	Tushara Rose, Senior Consultant	David Mahony, Head of Better Buildings
01	06_FEB 2024	DTP Issue	Tushara Rose, Senior Consultant	David Mahony, Head of Better Buildings
03	29_FEB 2024	Formal DTP Issue	Tushara Rose, Senior Consultant	David Mahony, Head of Better Buildings

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RESULTS	5
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SUMMARY-COMMERCIAL	22
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Project Overview

Project Name	Assemble Communities: Sydney Road, Coburg
Address	511-537 Sydney Road, Coburg VIC 3058
Traditional Custodians	Wurundjeri Woi-wurrung
Client	Assemble
Development Manager	Armitage Jones
Architect	JCB Architects
Landscape	Mala
Sustainability	HIP V. HYPE Sustainability
Development Summary	Site Area: 6,630 Office: 1,051 m² Retail: 103 m² Apartments: 326

Assemble Communities: Sydney Road, Coburg. Image by Jackson Burrows Clements Architects.

Introduction

This report provides an overview of the daylight study conducted for the proposed multi-unit residential development at 511-537 Sydney Road, Coburg within the municipal boundaries of City of Merri-bek.

The objective of this report is to describe the methodology and results of daylight amenity to the residential apartments within the development, benchmarked against the best practice sustainability rating tool, BESS.

PROJECT BACKGROUND

519-547 Sydney Road, Coburg brings high quality, sustainable apartment living to Coburg. In collaboration with JCB Architects, this high exposure site on Sydney Road provides highly efficient dwellings, coupled with 100% renewable energy supply, in a fossil-fuel free development. On-site solar photovoltaic electricity generation complements this efficiency and zero-carbon energy commitment.

STATUTORY CONTEXT

The site is situated in Coburg within the municipal boundaries of City of Merri-bek. Merri-bek City Council has objectives and strategies relating to ESD which are contained in the Merri-bek's Planning Scheme (Clause 15.01-2L-05 Environmentally Sustainable Development) and Planning Policies.

As part of Town Planning requirements, the project team is to demonstrate best practice daylight levels to the residential apartments in the development, in line with the BESS rating tool, specifically;

- A Daylight Factor (DF) of at least 1.0 for 90% of the Living Area floor for at least 80% of apartments
- A Daylight Factor (DF) of at least 0.5 for 90% of the Bedroom floor area for at least 80% of bedrooms

For the non-residential component of the project, the project team is to demonstrate best practice daylight levels in line with the BESS rating tool, specifically;

- A Daylight Factor (DF) of at least 2.0 for 30% of the floor area of regularly occupied primary spaces

Assemble Communities: Sydney Road, Coburg. Image by JCB Architects

Methodology

The daylight study is being conducted using the Daylight Factor method, which calculates the ratio of light levels inside a building to the light levels outside the building. The higher the daylight factor, the better the daylight provision to the indoor space. Daylight Factor calculations rely on a standard overcast sky model and is not dependant on time, season or location-based inputs.

Daylight modelling is being conducted using Climate Studio plug-in for Rhino which uses the Radiance daylight simulation engine to model daylight factor results.

INPUTS & ASSUMPTIONS

The following table outlines the inputs and assumptions used in the daylight modelling analysis

ITEM	PARAMETER
Architectural drawings	Architectural DTP Lodgement Revision 3
Apartment floor to ceiling heights	2.7m
Living area glazing extent	Varied (40-60%)
Glazing visible light transmissivity	72% VLT
Floor reflectance	52% Light coloured timber floors
Wall reflectance	94% Light coloured walls
Ceiling reflectance	94% White painted ceiling
Daylight Analysis Surface	Floor level
Overshadowing	Adjacent property and buildings
Sky	10,000 lux CIE Overcast Sky, where the ground ambient light level ≈ 10,000 Lux
Exclusions	Robes, cupboards, toilets, bathrooms, joinery and circulation space have been excluded from the analysis.

Level 00 Results

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Level 01 Results

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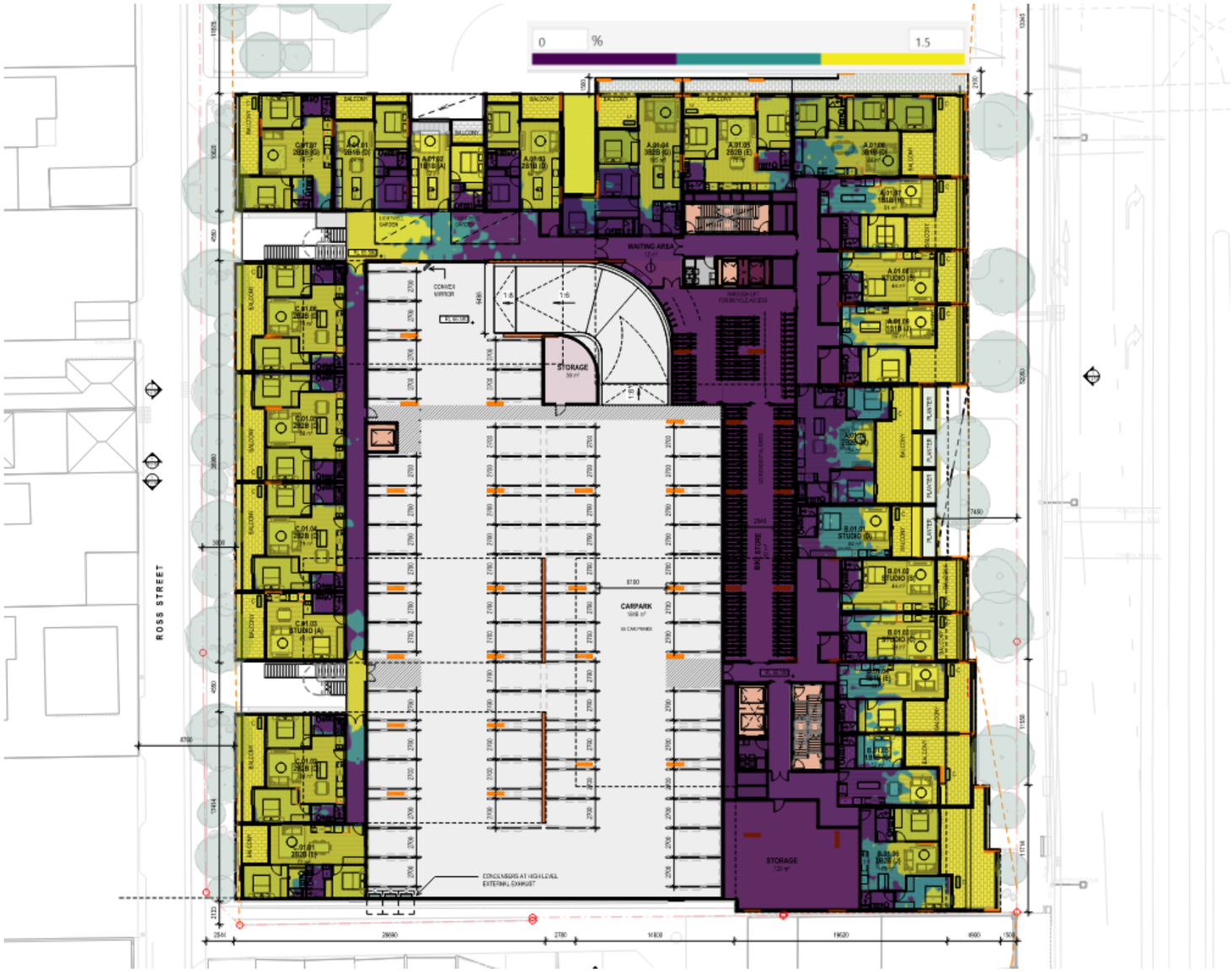

Level 02 Results

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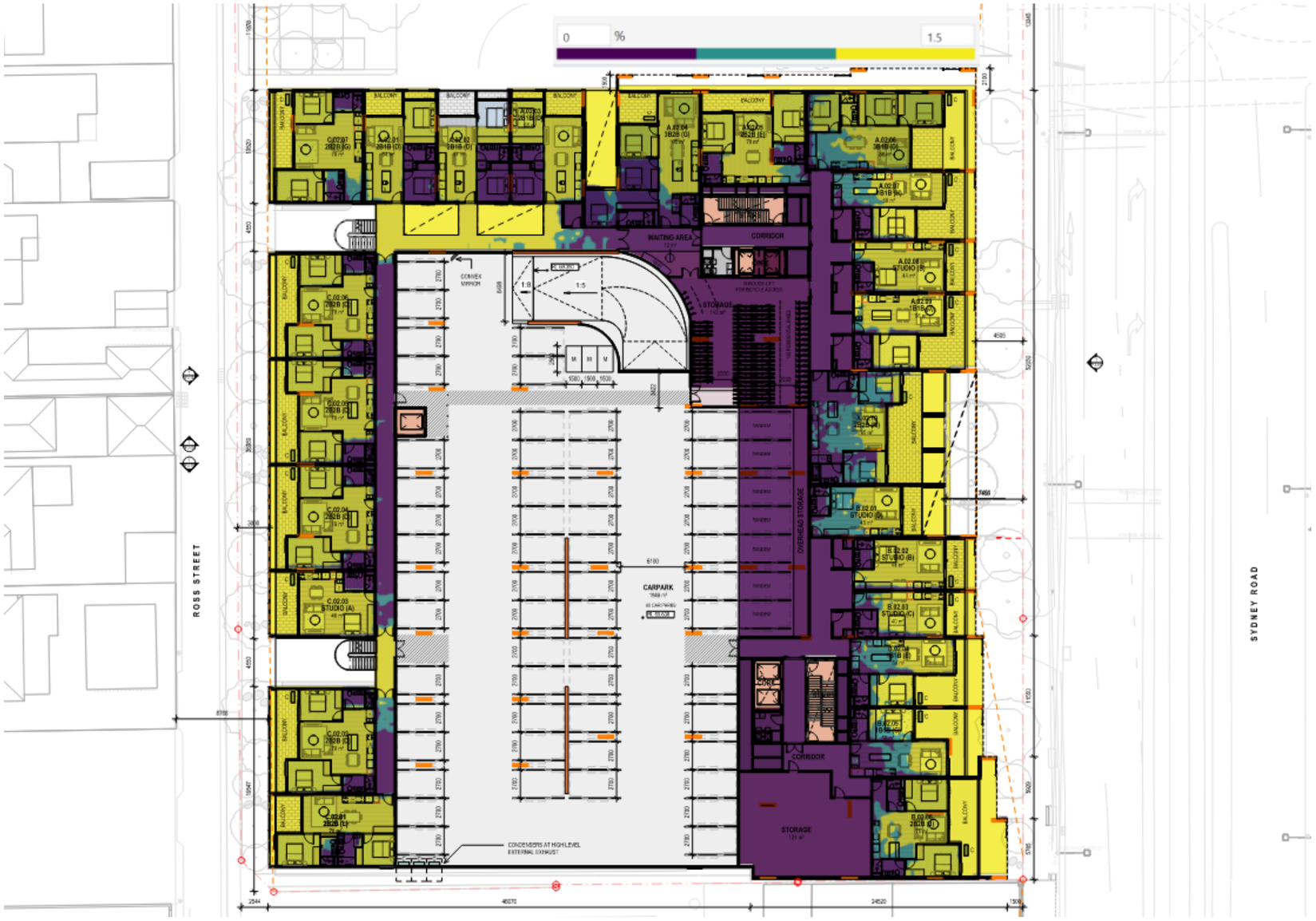

Level 03 Results

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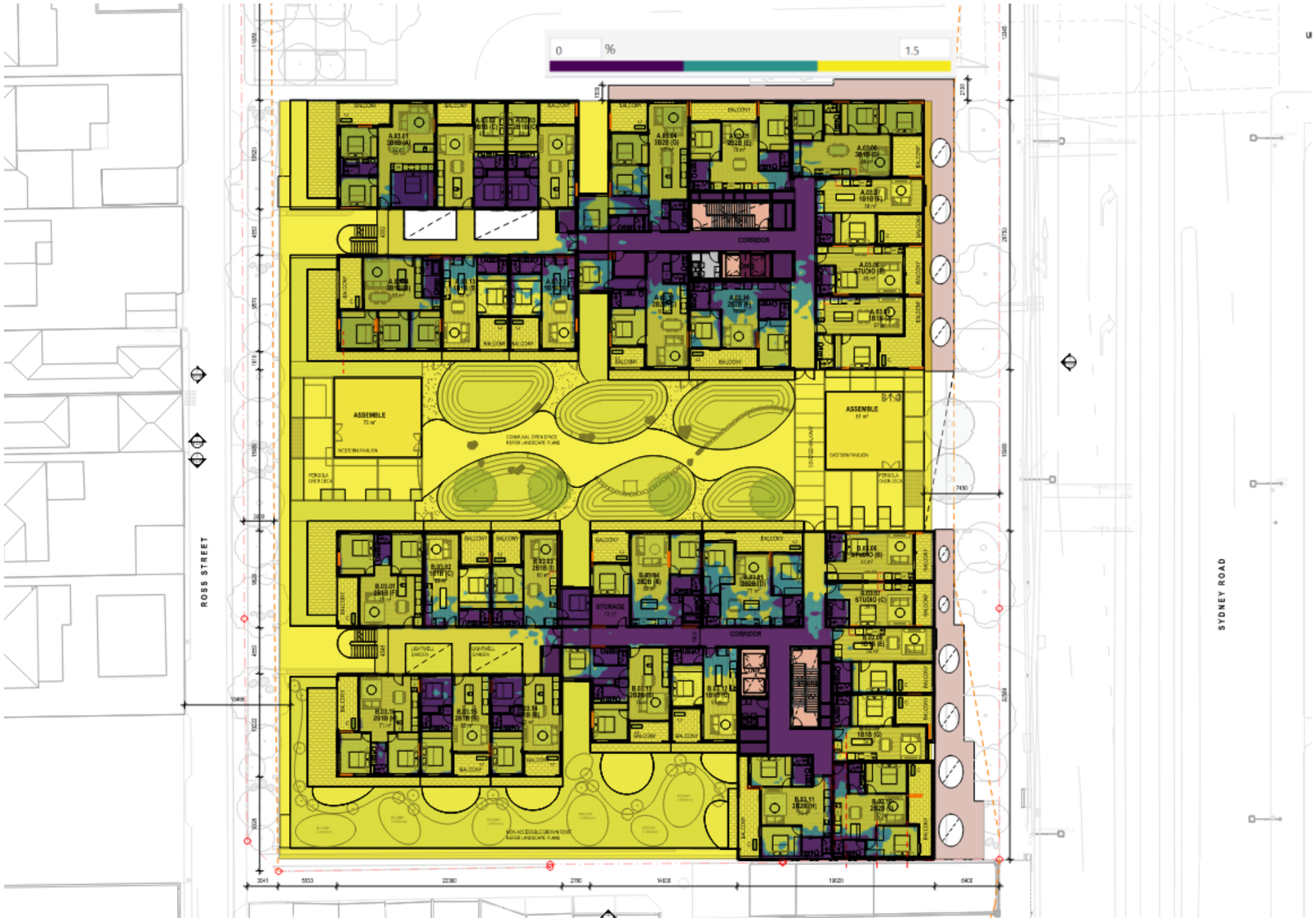

Level 04 Results

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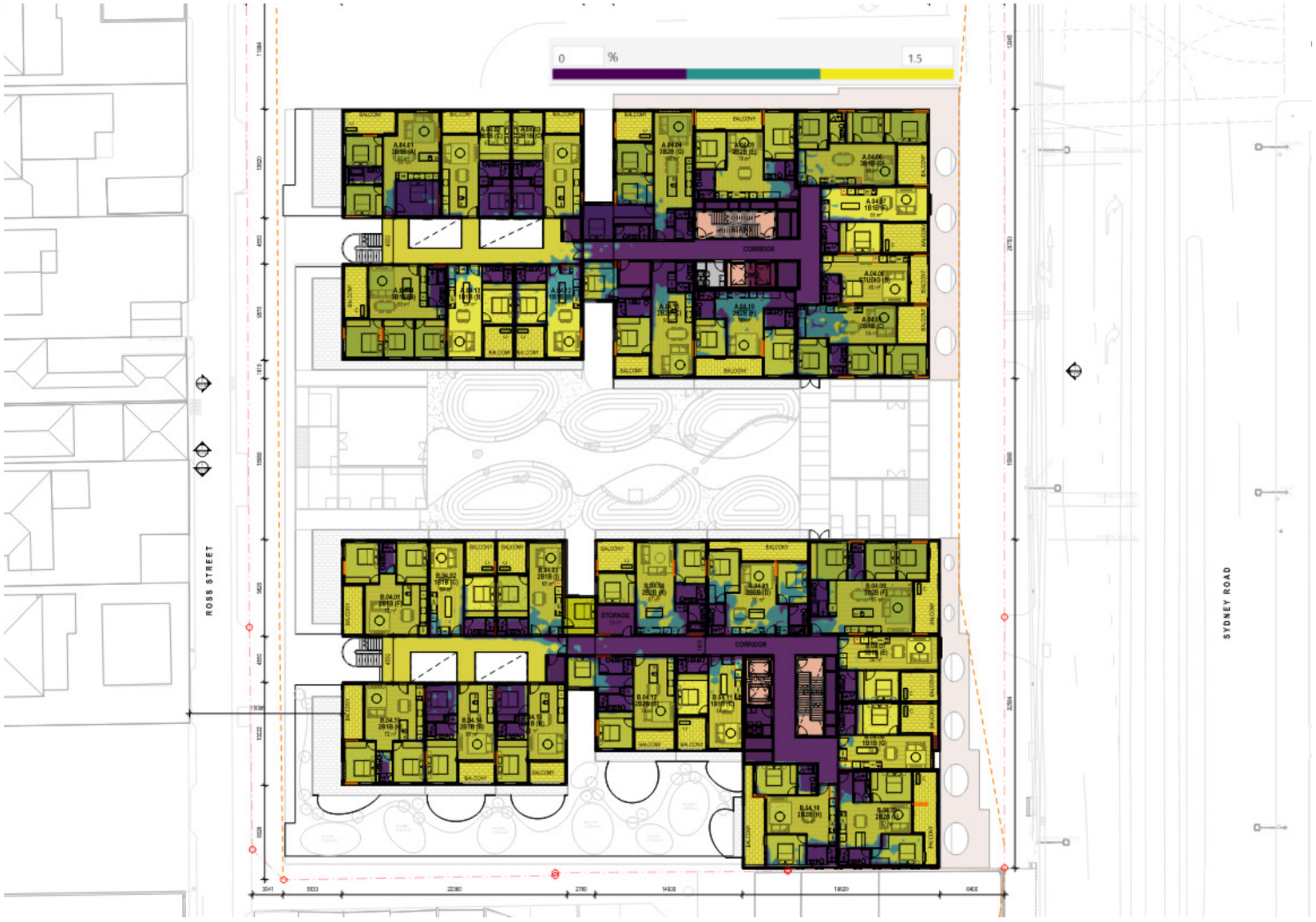

Level 05 Results

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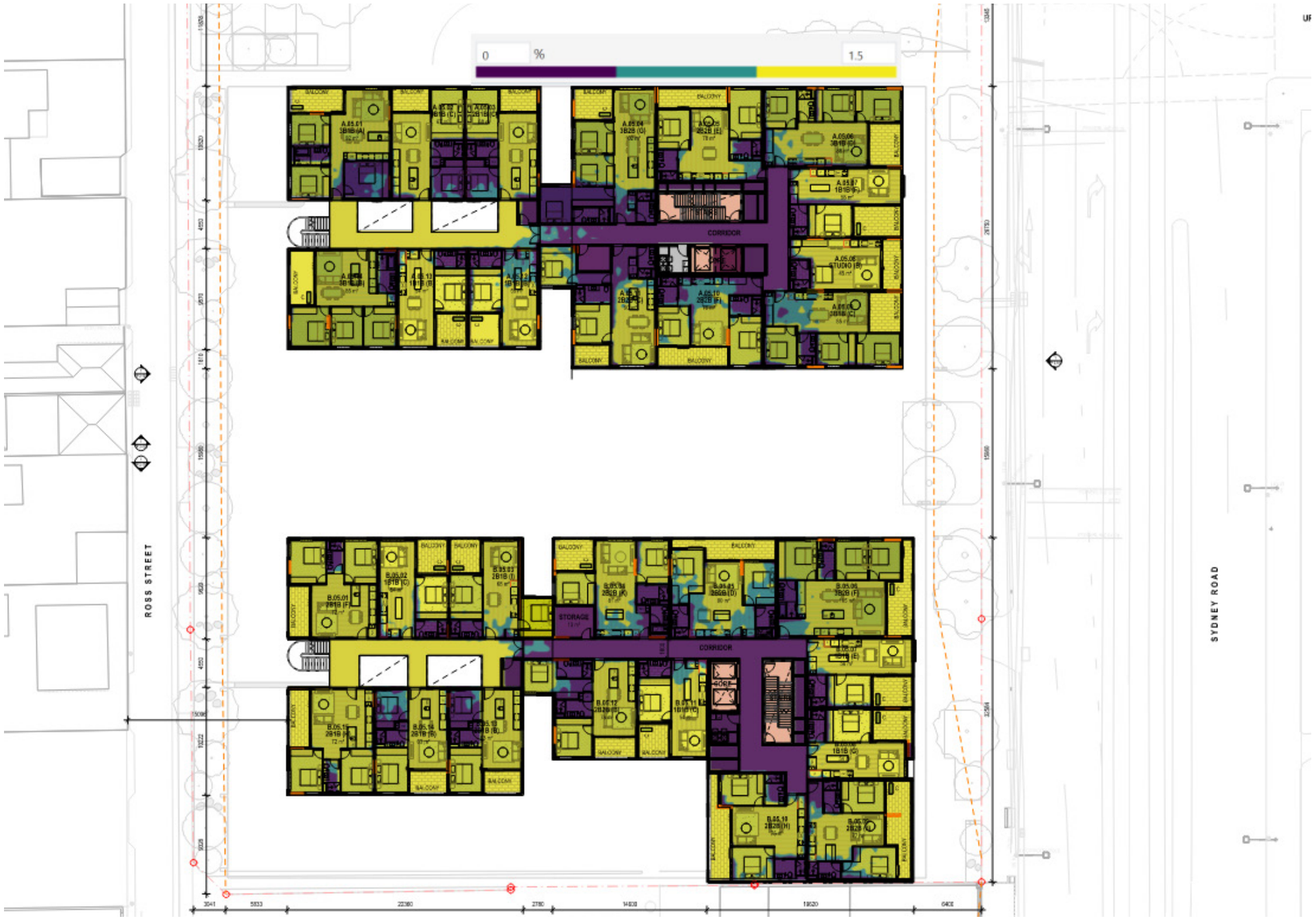

Level 06 Results

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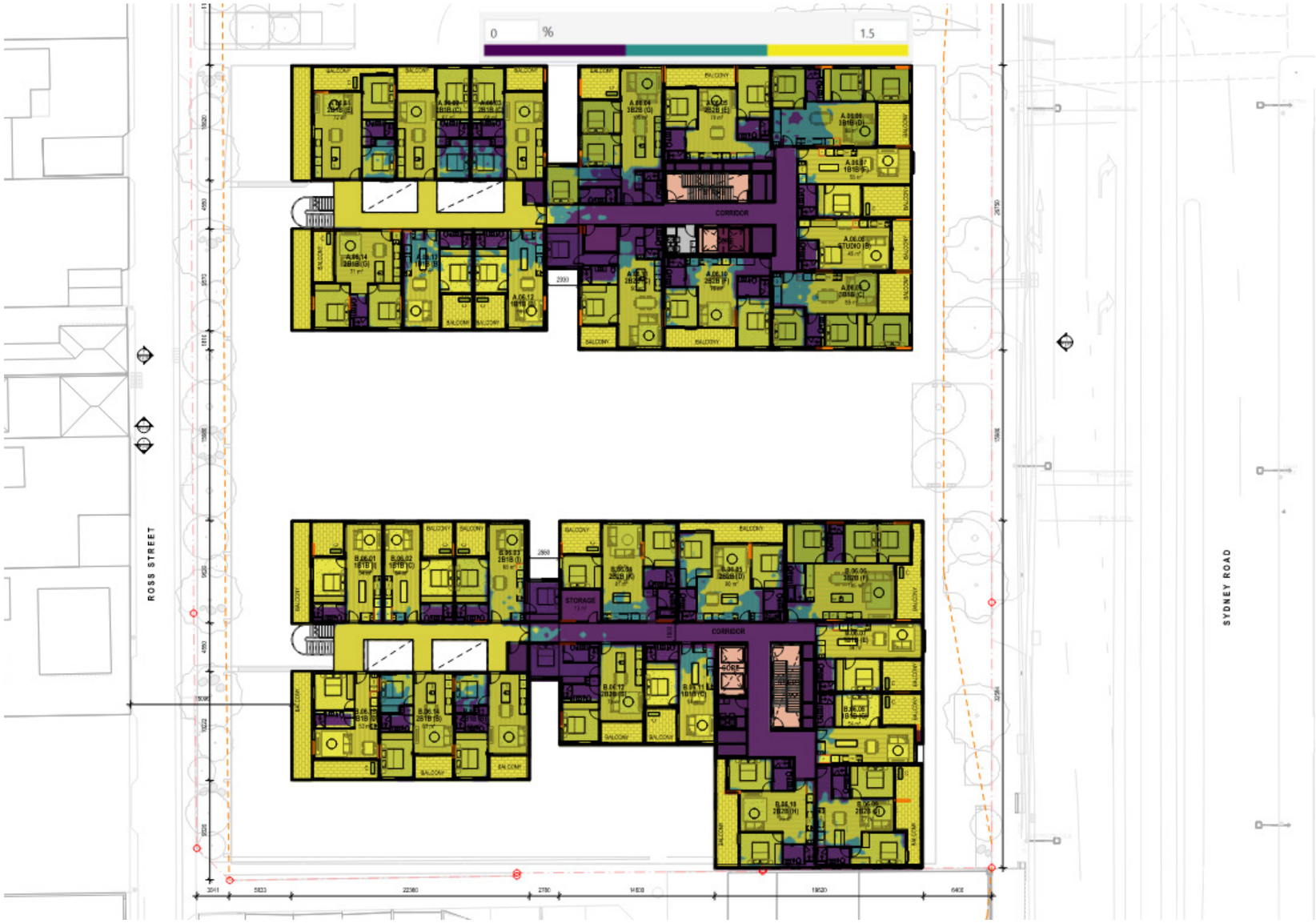

Level 07 Results

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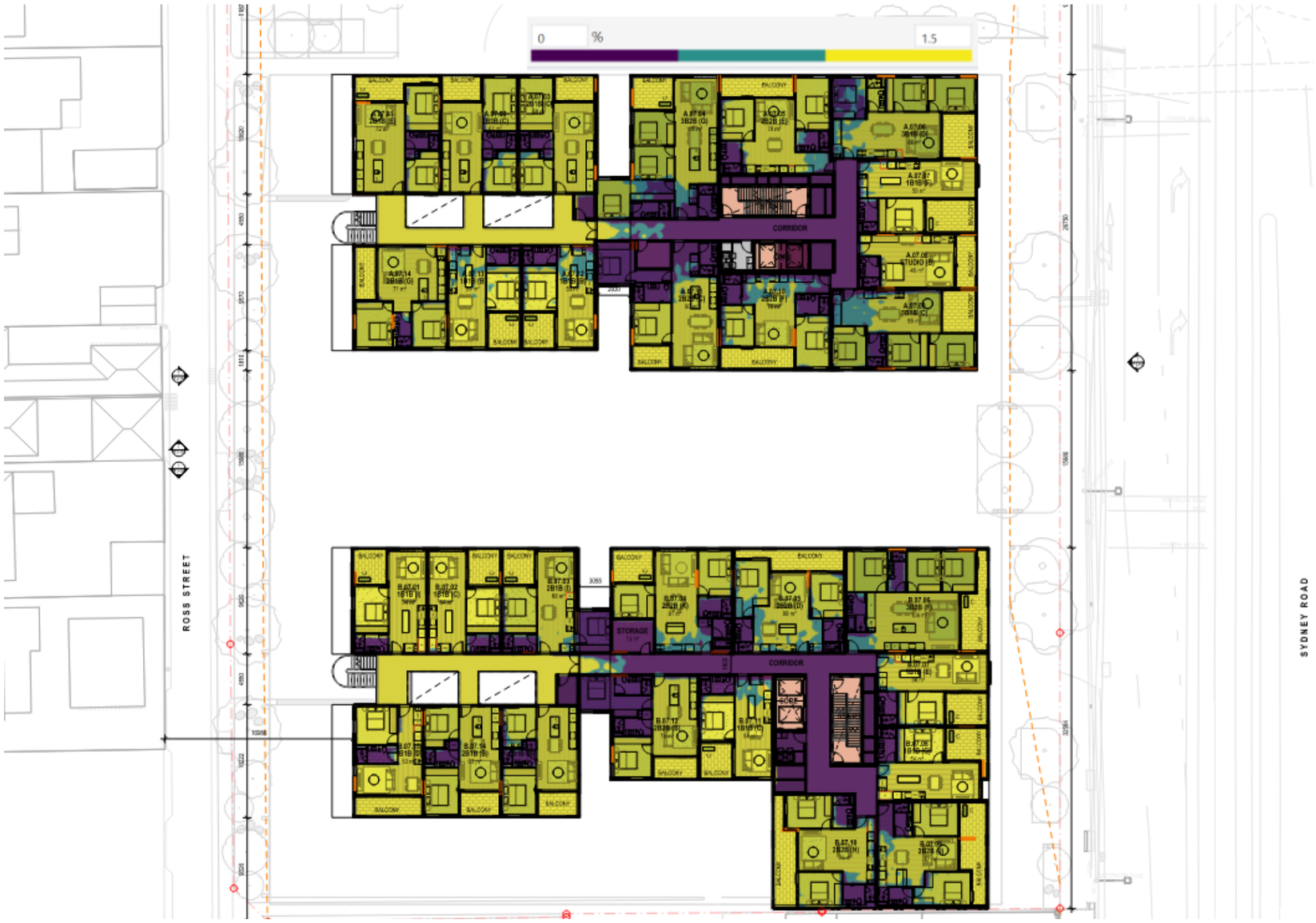

Level 08 Results

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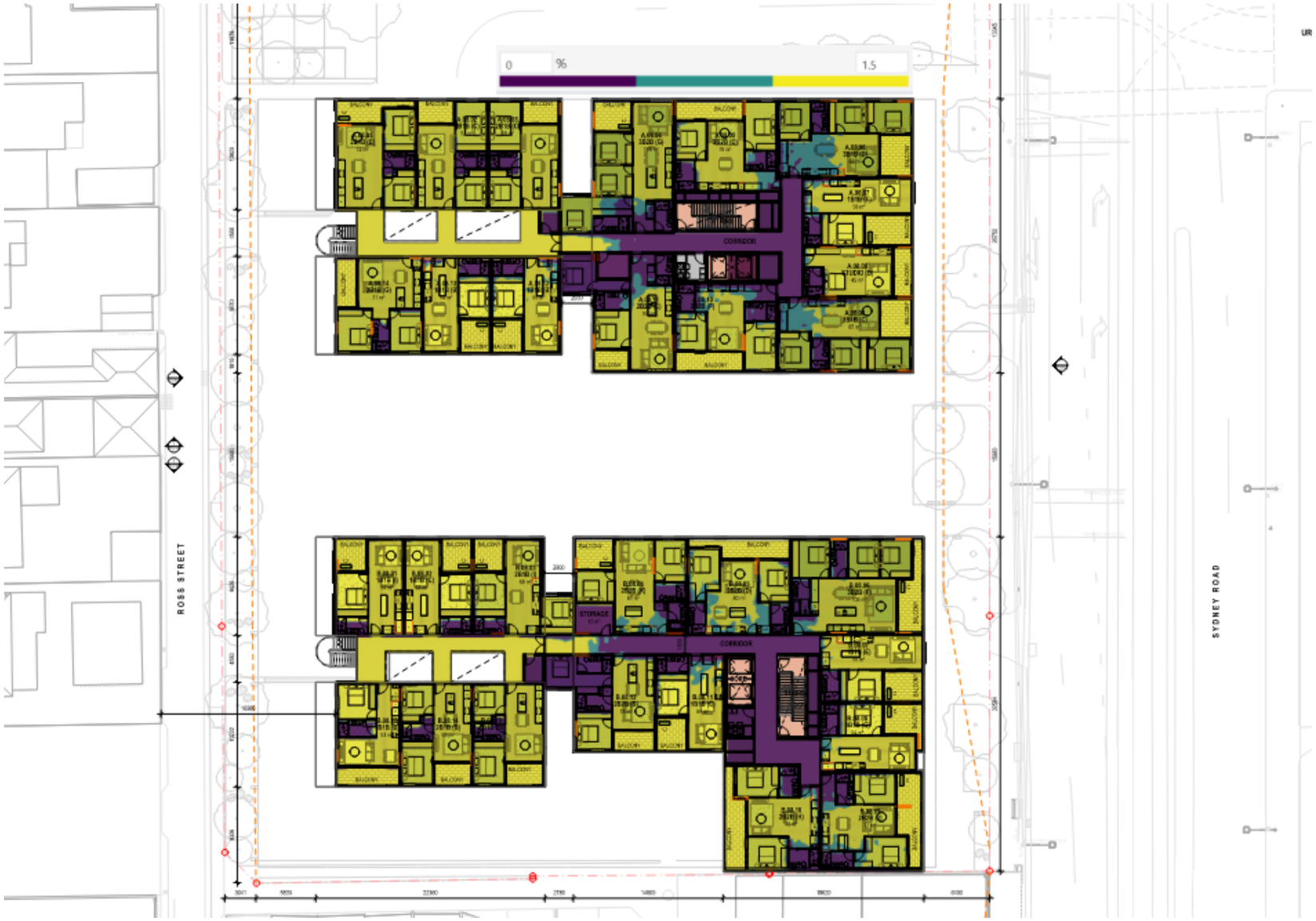

Level 09 Results

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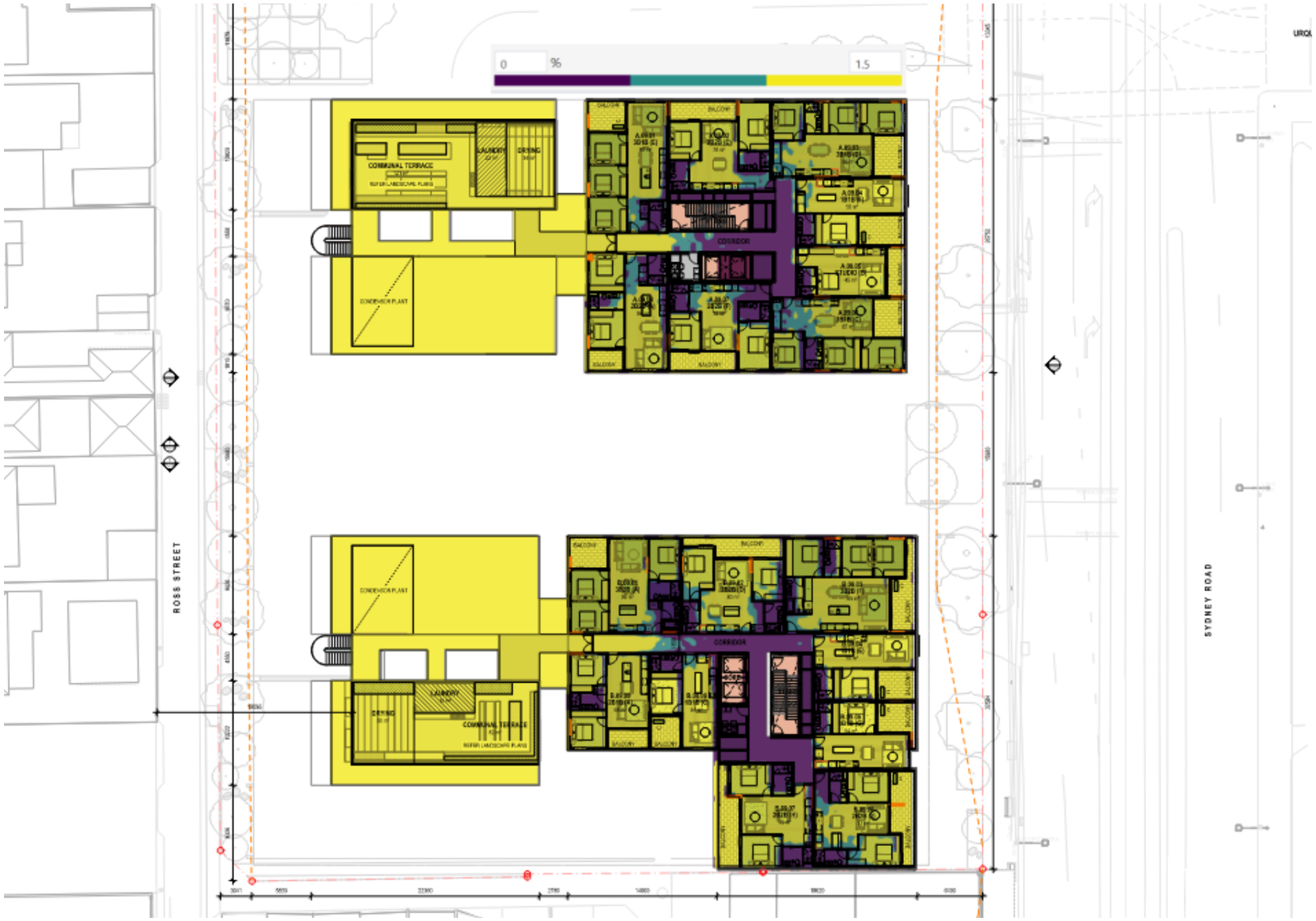

Level 10 Results

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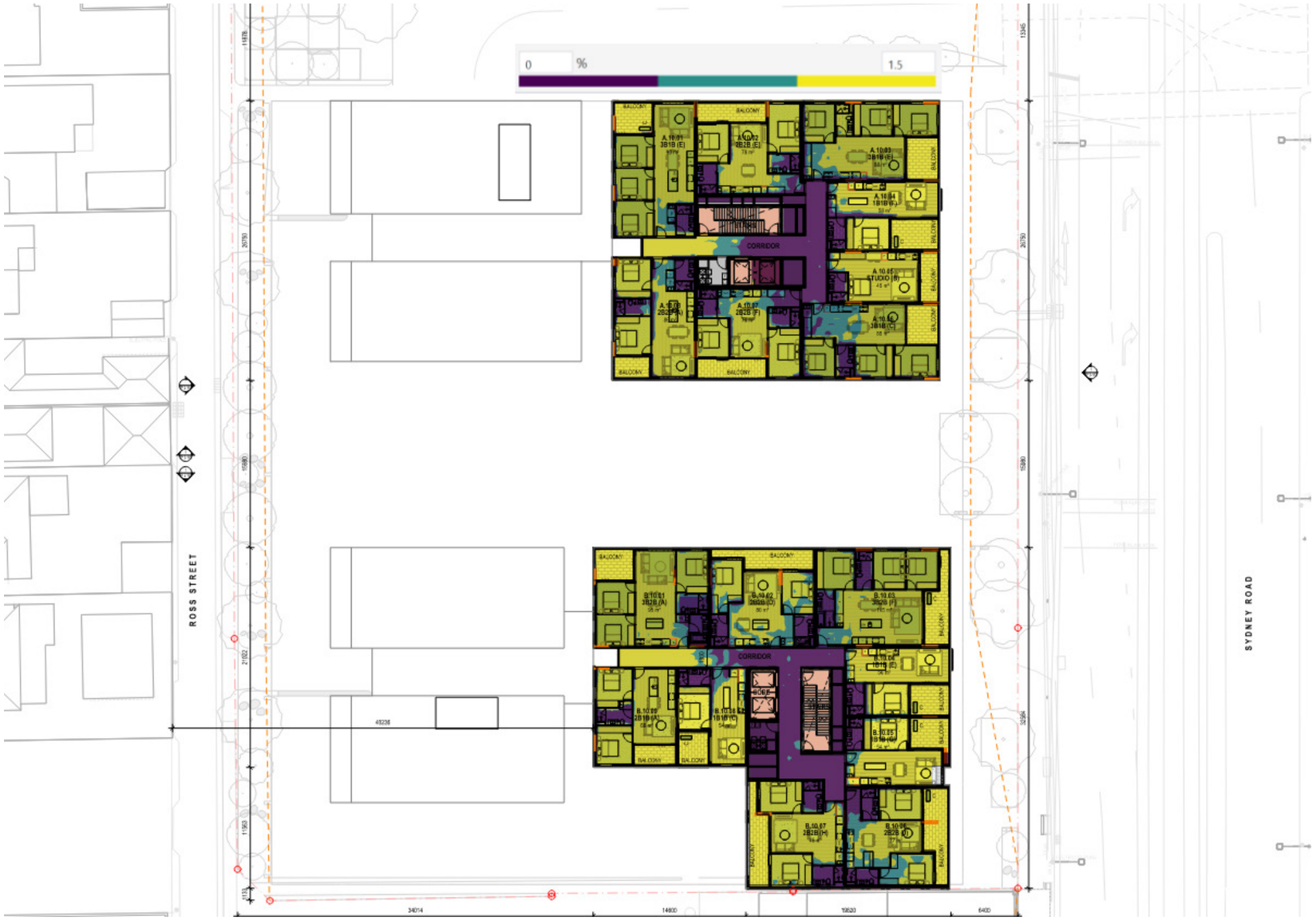

Level 11 Results

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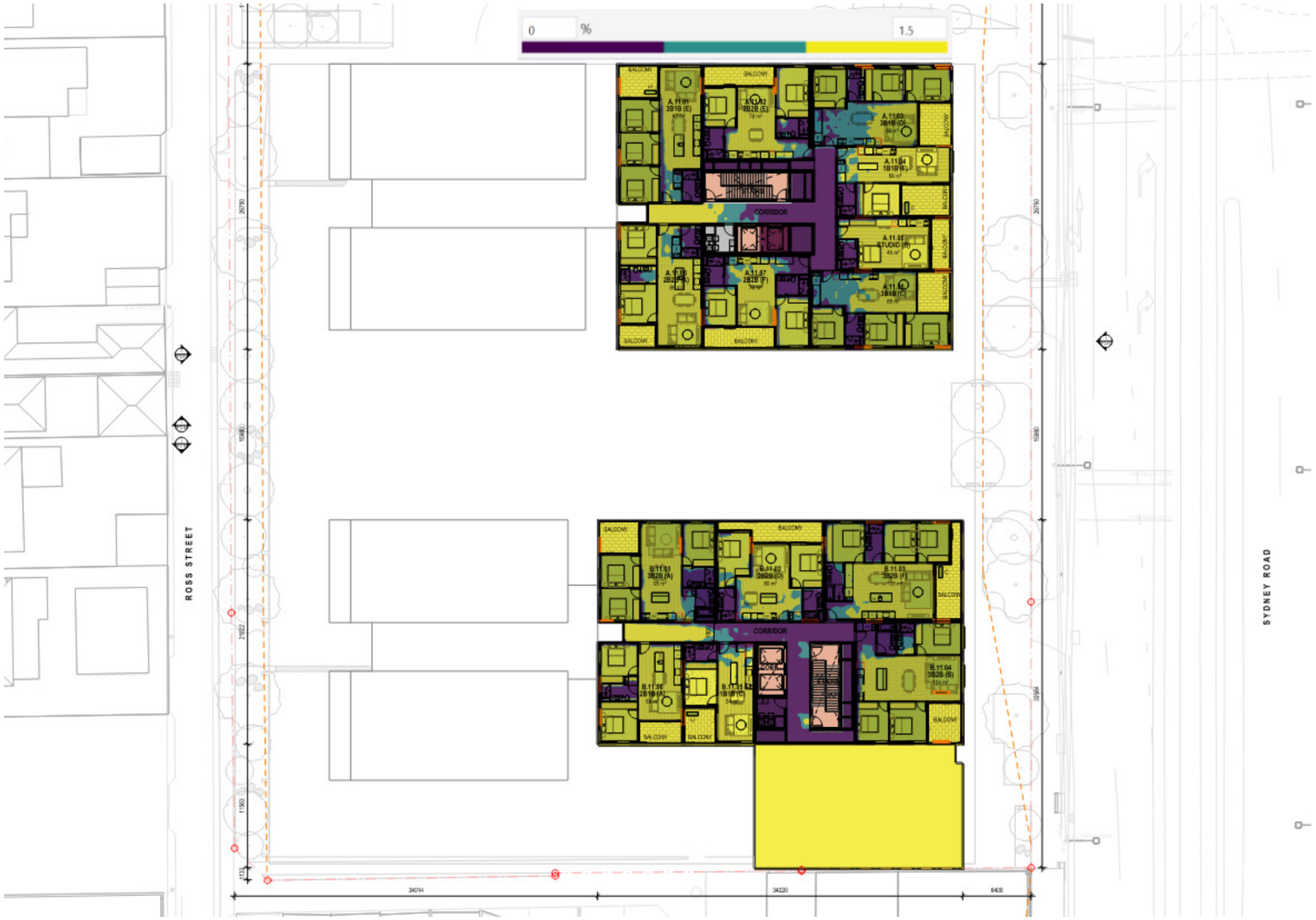

Level 12 Results

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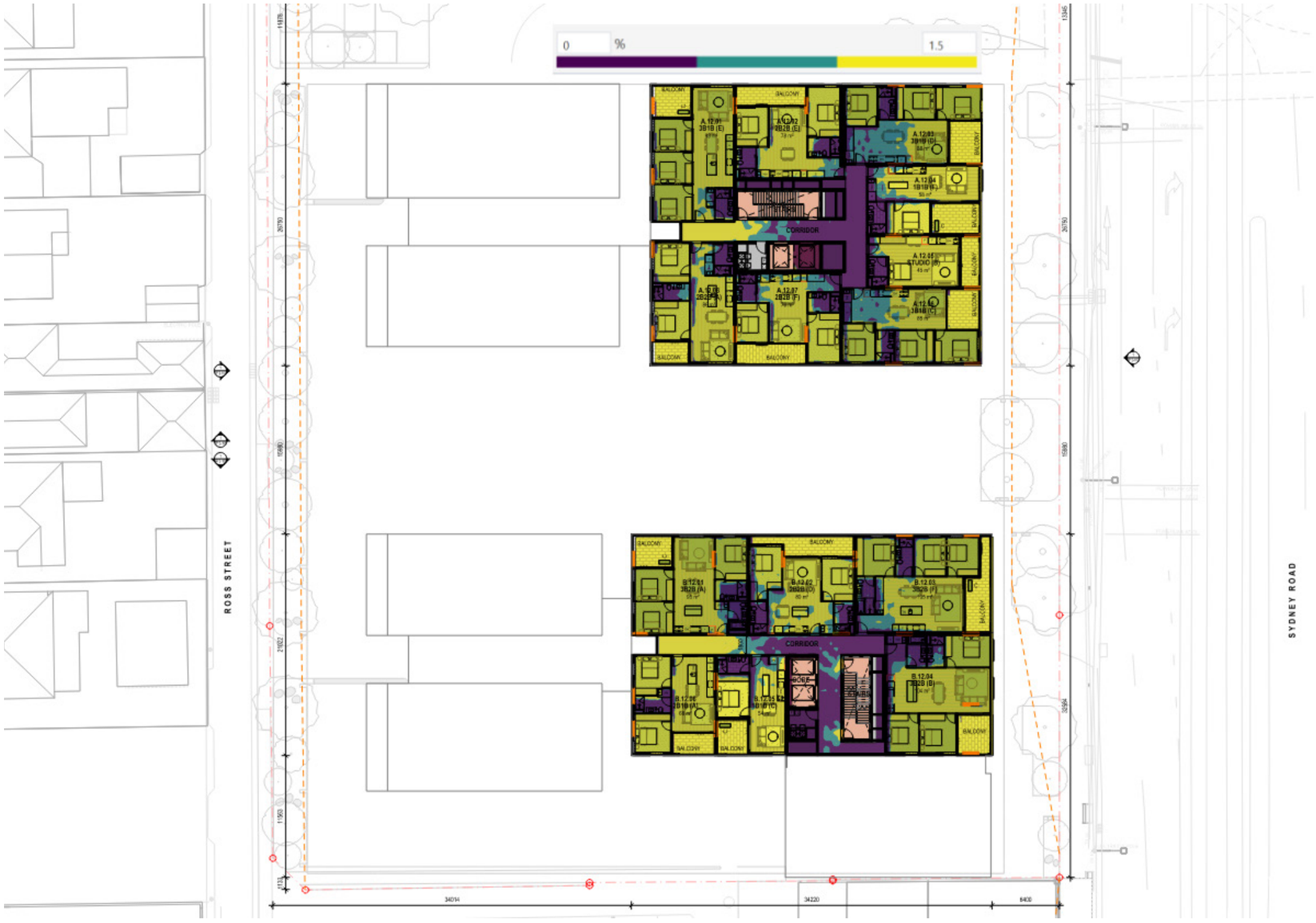
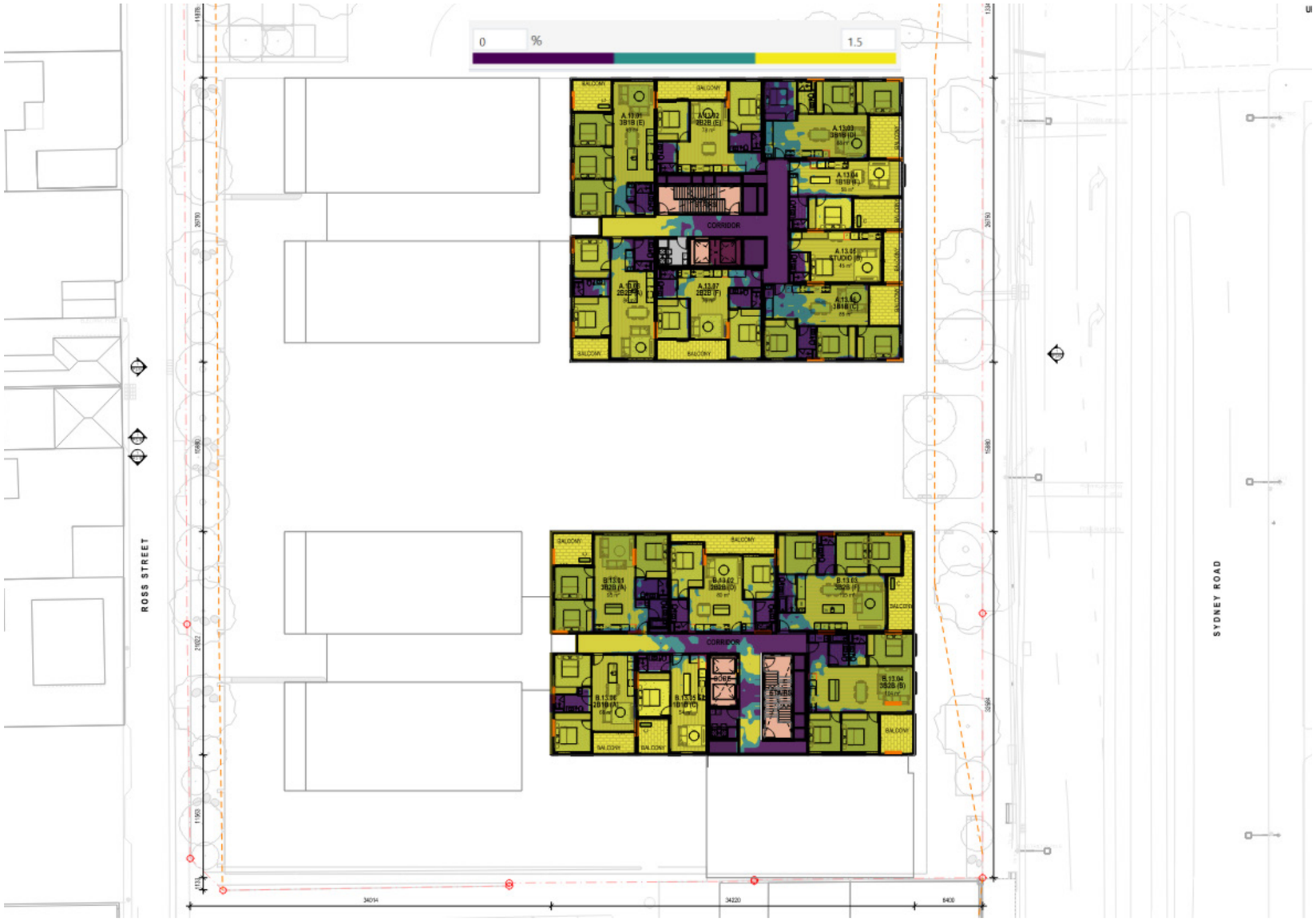


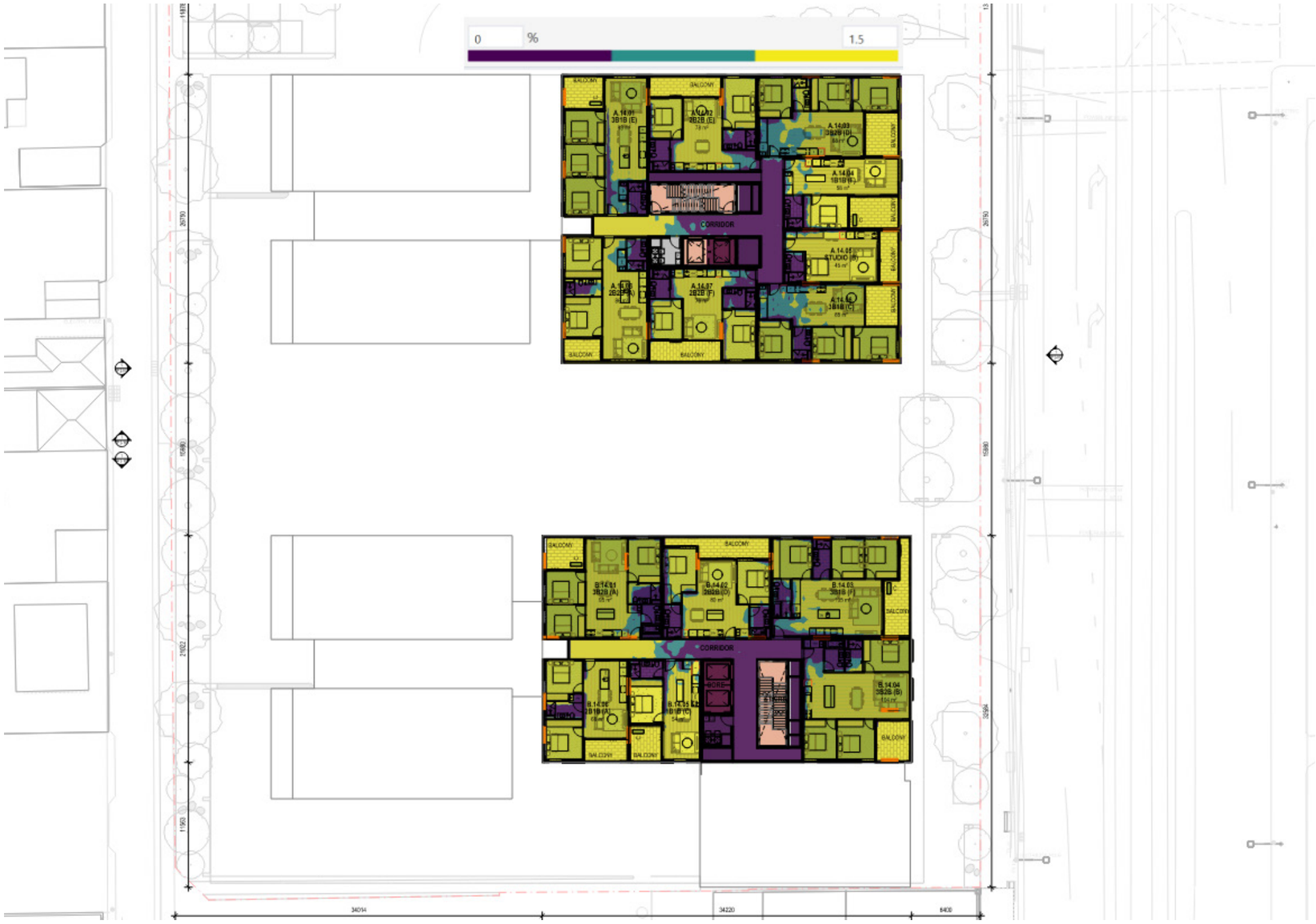
Level 13 Results

ADVERTISED PLAN



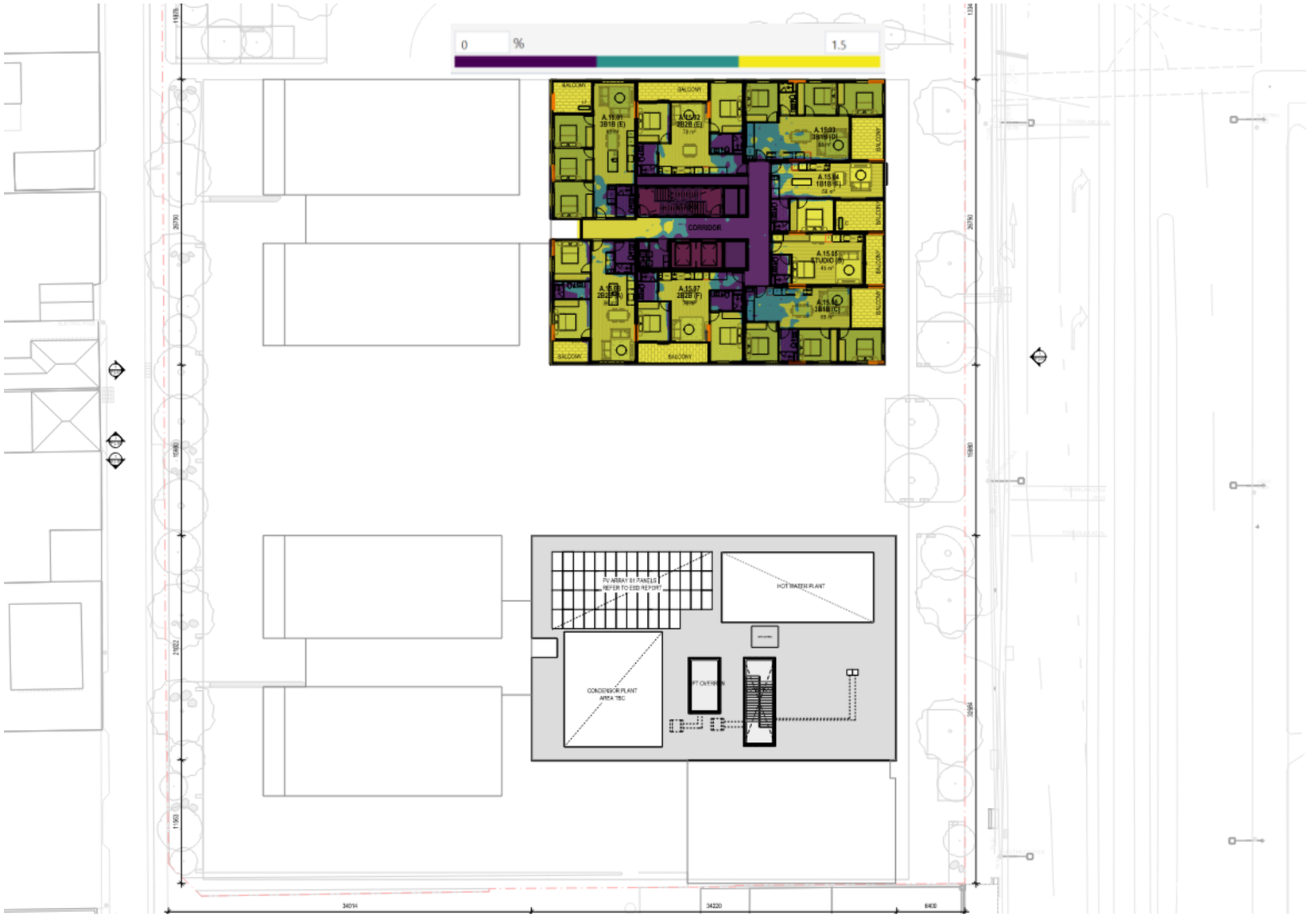
Level 14 Results

ADVERTISED PLAN



Level 15 Results

ADVERTISED PLAN



Summary- Residential

The daylight analysis conducted on a sample of typical levels demonstrates that the development provides minimum expectation of daylight access to occupants with over 84.3% of living and 93.9% of bedroom areas receiving high levels of daylight.

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RESIDENTIAL RESULTS SUMMARY

The following tables summarise the preliminary daylight assessment results for the Living Areas and Bedrooms.

LEVEL	NO. OF ASSESSED LIVING ROOMS	NO. OF ASSESSED BEDROOMS	NO OF COMPLIANT LIVING ROOMS	NO. OF COMPLIANT BEDROOMS
Level 00	7	13	7	12
Level 01	23	38	15	32
Level 02	23	39	17	33
Level 03	30	53	22	47
Level 04	29	56	25	50
Level 05	29	56	25	50
Level 06	29	52	24	50
Level 07	29	52	27	49
Level 08	29	52	27	50
Level 09	17	34	16	34
Level 10	17	34	16	34
Level 11	14	31	13	31
Level 12	14	31	12	31
Level 13	14	31	12	31
Level 14	14	31	12	31
Level 15	8	17	6	17
Total	**326**	**620**	**275**	**582**

Summary- Commercial

In summary, daylight access to the commercial areas has exceeded the minimum requirements across the development.

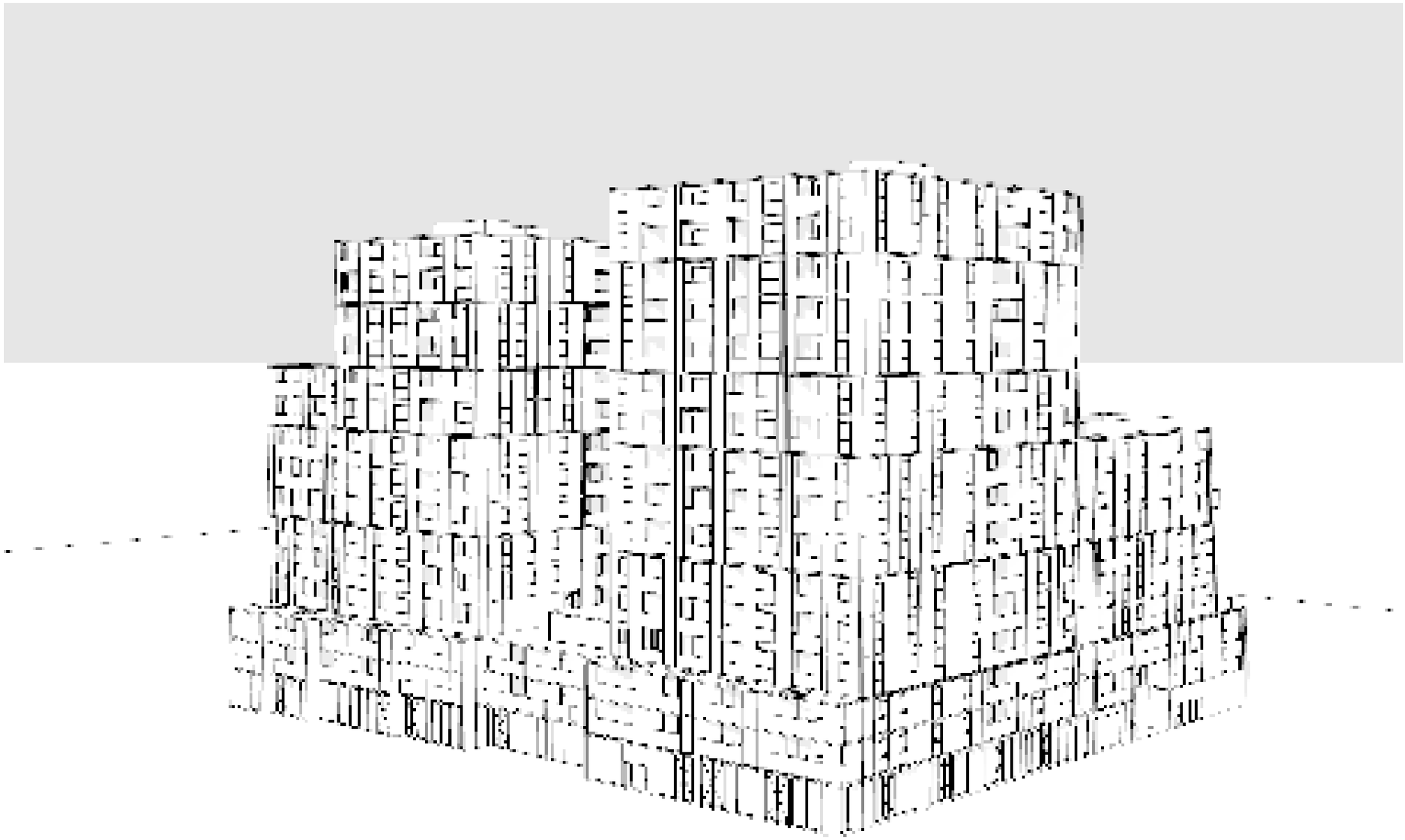
COMMERCIAL RESULTS SUMMARY

The following section contains the results of the daylight study for the commercial component of the development, broken down by level.

Level	Total Commercial Areas	Commercial Areas with DF > 2.0 for 30% of Area
Level 00	5	5
Percentage above threshold		100%

APPENDIX A: 3D MODEL

3D Model



We respectfully acknowledge that every project enabled or assisted by HIP V. HYPE in Australia exists on traditional Aboriginal lands which have been sustained for thousands of years.

We honour their ongoing connection to these lands, and seek to respectfully acknowledge the Traditional Custodians in our work.

—

For additional information, questions unturned, collaboration opportunities and project enquiries please get in touch.

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Appendix E: NCC Section J DTS Assessment

Project: 1-0504
Version: 03
Date: 29_FEBRUARY 2024

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NCC 2019 Amendment 1: Part J - Deemed to Satisfy Report

511 - 537 Sydney Road, Coburg

HIP V. HYPE

WHO WE ARE

HIP V. HYPE Sustainability provides advice that is commercially grounded, yet ambitious. We pursue exceptional outcomes that are socially, economically and environmentally sustainable and enable action across government, institutions and organisations.

We seek to partner with those who are willing to think strategically to achieve better. We lead, collaborate and support others to deliver impact and build Better Cities and Regions, Better Buildings, and Better Businesses.

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DISCLAIMER

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HIP V. HYPE is Equal Assurance ISO 9001, ISO 14001 and ISO 45001 certified.

VERSION	DATE	PREPARED BY	APPROVED BY
01	29_NOVEMBER 2023	Tushara Rose, Senior Consultant	David Mahony, Head of Better Buildings
02	06_FEBRUARY 2024	Tushara Rose, Senior Consultant	David Mahony, Head of Better Buildings
03	29_FEBRUARY 2024	Tushara Rose, Senior Consultant	David Mahony, Head of Better Buildings

HIP V. HYPE

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Executive Summary

The purpose of this report is to present the Deemed to Satisfy requirements the development at Sydney Road, Coburg will need to adhere to in order to comply to NCC 2019 Amendment 1 Part J and meet City of Merri-bek's performance requirements.

SUMMARY

To achieve NCC 2019 Part J compliance for the non-residential component of the project, the following criteria must be met:

+ Part J1 - Building Fabric
+ Part J3 - Building Sealing

Parts J5, J6, J7 & J8 are to be covered by the Electrical, Mechanical and Hydraulic consultants.

Additionally, to meet the requirements of City of Merri-bek Council, a minimum 10% increase on the Section J DTS requirements is required. This has been captured within this report.

Based on our review of documentation issued to date, the development has the ability to demonstrate compliance with the Deemed-to-Satisfy method provisions of the NCC 2019 Amendment 1 Part J and meet the performance requirements outlined by City of Merri-bek. The following sections detail the requirements and the review results for the building fabric and glazing of the project.

Introduction

This report has been drafted for Assemble and is intended to demonstrate NCC Deemed-to-Satisfy compliance for the development.

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HIP V. HYPE Sustainability (HV.H) have been engaged by Assemble Communities to review the development at Sydney Road, Coburg against the NCC 2019, Amendment 1 requirements:

- Part J1 Building Fabric Design
- Part J3 Building Sealing

It is expected that parts J5, J6 J7 & J8 will be covered by other relevant consultants.

This report outlines the NCC 2019 Part J requirements and reviews the design documentation for compliance.

PROJECT SUMMARY

Project Name	Assemble Communities: Sydney Road, Coburg
Address	511 - 537 Sydney Road, Coburg VIC 3058
Traditional Custodians	Wurundjeri Woi-Wurrung
Client	Assemble
Development Manager	Armitage Jones
Architect	Jackson Clements Burrows Architects
Landscape	Mala
Sustainability	HIP V. HYPE

Traditional Ownership: We recognise the intrinsic connection of Traditional Owners to Country and value their contribution to managing the land, water, natural and built landscapes.

The Wurundjeri Woi-Wurrung people maintain traditional ownership and have shaped the cultural history of the site for thousands of years. They have an inseparable bond with local land and waters.

J1.2 THERMAL CONSTRUCTION - GENERAL

Requirement:

Where required, insulation must comply with AS/NZS 4859.1, and be installed so that it -

- abuts or overlaps adjoining insulation other than at supporting members such as studs, noggings, joists, furring channels and the like where the insulation must be against the member; and
- forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier; and
- does not affect the safe or effective operation of a service or fitting.

Where required, reflective insulation must be installed with—

- The necessary airspace to achieve the required R-Value between a reflective side of the reflective insulation and a building lining or cladding; and
- The reflective insulation closely fitted against any penetration, door or window opening; and
- The reflective insulation adequately supported by framing members; and
- Each adjoining sheet of roll membrane being—
  + Overlapped not less than 50 mm; or
  + Taped together."

Where required, bulk insulation must be installed so that—

- It maintains its position and thickness, other than where it is compressed between cladding and supporting members, water pipes, electrical cabling or the like; and
- In a ceiling, where there is no bulk insulation or reflective insulation in the wall beneath, it overlaps the wall by not less than 50mm.

Roof, ceiling, wall and floor materials, and associated surfaces are deemed to have the thermal properties listed in Specification J1.2.

The required Total R-Value and Total System U-Value, including allowance for thermal bridging, must be—

- Calculated in accordance with AS/NZS 4859.2 for a roof or floor; or
- Determined in accordance with Specification J1.5a for wall-glazing construction; or
- Determined in accordance with Specification J1.6 or Section 3.5 of CIBSE Guide A for soil or sub-floor spaces.

J1.3 ROOF AND CEILING CONSTRUCTION

Requirement:

"A roof or ceiling that is part of the envelope, other than of a sole-occupancy unit of a Class 2 building or a Class 4 part of a building, must achieve the Total R-Value specified in Table J1.3a for the direction of heat flow.

In Climate Zone 6, this is Total R-Value >= 3.2 downwards".

Where the roof or ceiling separates a conditioned zone and the external environment, the thermal performance of the roof/ceiling shall be no less than R3.2t + 10% increase for planning requirements; R3.5t

J1.5 WALLS AND GLAZING

Requirement:

The Total System U-Value of wall-glazing construction must not be greater than—

- For a Class 2 common area, a Class 5, 6, 7, 8 or 9b building or a Class 9a building other than a ward area, U2.0 W/m^{2}K

The Total System U-Value of display glazing must not be greater than U5.8.

The Total System U-Value of wall-glazing construction must be calculated in accordance with Specification J1.5a.

Wall components of a wall-glazing construction must achieve a minimum Total R-Value of—

- where the wall is less than 80% of the area of the wall-glazing construction, R1.0; or
- where the wall is 80% or more of the area of the wall-glazing construction, the value specified in Table J1.5a.

The solar admittance of externally facing wall-glazing construction must not be greater than—

- For a Class 2 common area, a Class 5, 6, 7, 8 or 9b building or a Class 9a building other than a ward area, the values specified in Table J1.5b

The solar admittance of a wall-glazing construction must be calculated in accordance with Specification J1.5a.

The Total system SHGC of display glazing must not be greater than 0.81 divided by the applicable shading factor specified in Clause 7 of Specification J1.5a.

J1.6 FLOORS

Requirement:

A floor must achieve the Total R-Value specified in Table J1.6: Minimum Total R-Value. Climate Zone 6, Table J1.6 states that a minimum R-Value of R2.0 is required for any exposed floor to the external environment.

An additional 10% increase is required for Planning, totalling R2.2t.

J3.2 CHIMNEYS AND FLUES

Requirement:

Any chimney or flue must be provided with a damper or flap that can be closed to seal the chimney or flue.

No chimneys or flues proposed for project.

J3.3 ROOF LIGHTS

Requirement:

A roof light must be sealed, or capable of being sealed, when serving-

- A conditioned space; or
- A habitable room or public area or public area in climate zones 4, 5, 6, 7 and 8.

A roof light that is sealed or capable of being sealed must be constructed with:

- An imperforated ceiling diffuser or the like installed at the ceiling level or internal lining level; or
- A weatherproof seal; or
- A shutter system readily operated either manually, mechanically or electronically by the occupant.

No roof lights proposed for project.

J3.4 WINDOWS AND DOORS

Requirement:

A seal to restrict air infiltration must be fitted to each edge of all external doors, openable external windows or the like. A seal may be a foam or rubber compressible strip, fibrous seal or the like. However for the bottom edge of a door, the seal must be a draft protection device.

These requirements do not apply to:

- A window complying with AS 2047; or
- An external louvre door, louvre window, or other such opening; or
- A fire door; or
- A roller shutter door, roller shutter grille or other security door or device installed only for out-of-hours security

All doors to the conditioned zone must have a self-closing device.

An entrance to the building, if leading to a conditioned space must have an air lock, self-closing door, rapid roller door, revolving door or the like, other than

- where the conditioned space has a floor area of not more than 50 m2; or
- where a café, restaurant, open front shop or the like has:
  + a 3m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and
  + at all other entrances to the café, restaurant, open front shop or the like, self-closing doors

A loading dock entrance, if leading to a conditioned space, must be fitted with a rapid roller door or the like.

Windows and doors to be constructed to J3.4 requirements.

J3.5 EXHAUST FANS

Requirement:

Any miscellaneous exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving a conditional space. This requirement will be documented by the Mechanical Services consultant.

Exhaust fan to be built to J3.5 requirements, with documentation completed by Mechanical Services consultant.

J3.6 CONSTRUCTION OF ROOFS, WALLS AND FLOORS

Requirement:

Roofs, ceilings, external walls, external floors and any opening such as a window, roof light, door or the like must be constructed to minimise air leakage. All Constructions must be:

- Enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions; or
- Sealed at junctions and penetrations by caulking, expanding foam, compressible strip, skirting, close fitting architraves, cornices or the like.

These requirements do not apply to openings, grilles and the like required for smoke hazard management.

Construction of project to adhere to J3.6 requirements.

J3.7 EVAPORATIVE COOLERS

Requirement:

For compliance with NCC 2019 Section J3.7, an evaporative cooler must be fitted with a self-closing damper or the like when serving a heated space or a habitable room or a public area of a building in climate zones 4, 5, 6, 7 or 8. Should evaporative coolers be installed in this project, this requirement will be documented by the Mechanical Services consultant

No evaporative coolers proposed for project.

Wall, Floor and Roof Insulation mark-up

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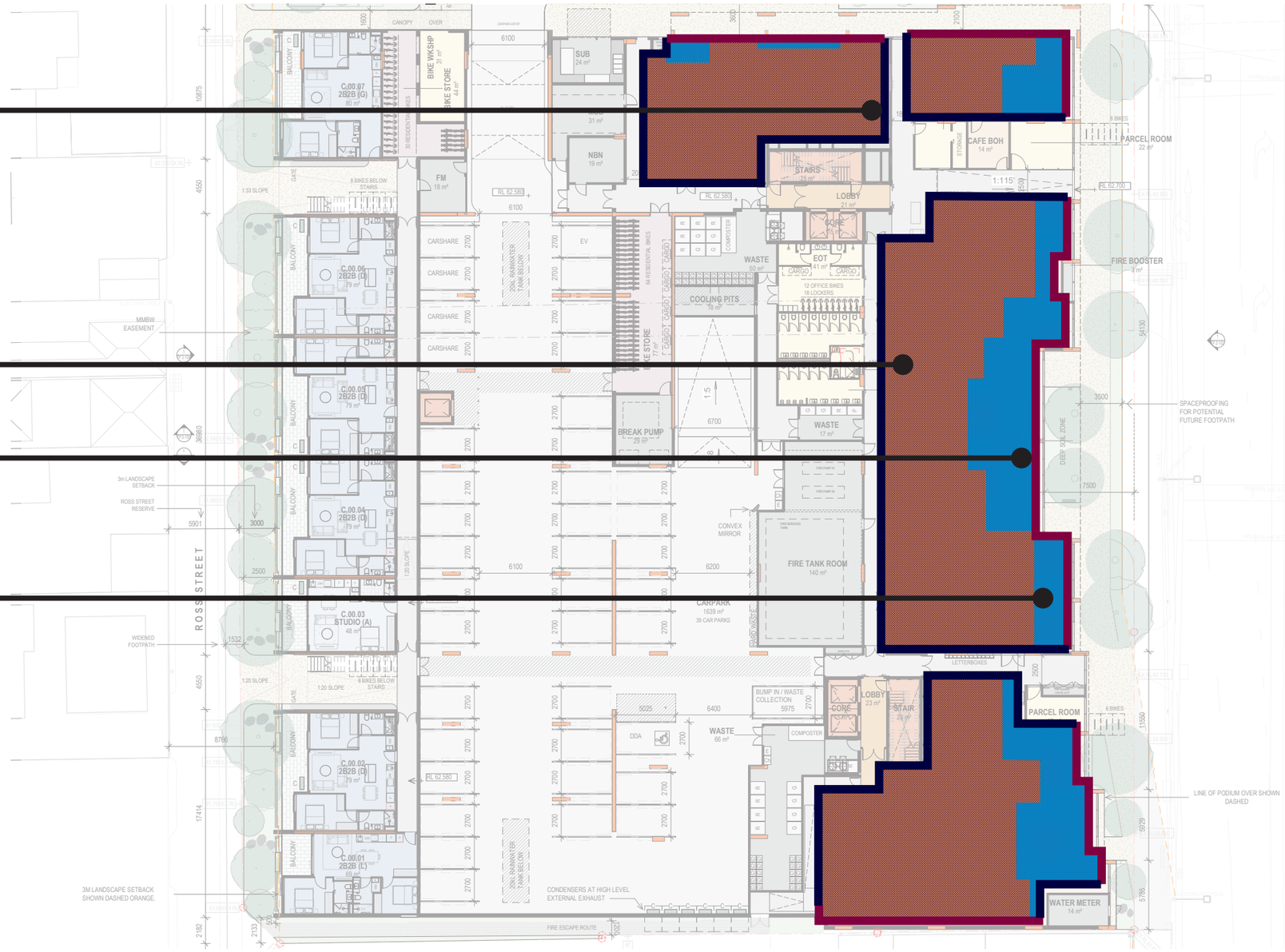
Internal Wall: R1.6t

Exposed Floor: R2.2t

External Wall: R2.2t

Exposed Ceiling: R3.5t



Compliance Summary

The following table provides a summary of the thermal requirements to meet the Deemed-to-Satisfy Provisions:

ITEM	REQUIRED VALUES
EXTERNAL WALLS	Wall construction TBC, with a thermal performance of no less than R2.2t
PARTY/INTERNAL WALLS	Minimum R1.6 insulation to be installed
ROOF AND EXPOSED CEILING	Exposed slab construction, with a thermal performance of no less than R3.5t
EXPOSED FLOOR	Where applicable, a thermal performance of no less than R2.2t
GLAZING	U value: </ = 4.3 W/m^2K SHGC: </= 0.32

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Conclusion

The proposed project with the design specification outlined within this report seeks to comply with the requirements of the 2019 NCC Volume One Section J0.5, J1 and J3 utilising the “DTS-Deemed to Satisfy” assessment method.

The Barkly St Collective - Tess Kelly

We respectfully acknowledge that every project enabled or assisted by HIP V. HYPE in Australia exists on traditional aboriginal lands which have been sustained for thousands of years.

We honour their ongoing connection to these lands, and seek to respectfully acknowledge the traditional custodians in our work.

—

For additional information, questions unturned, collaboration opportunities and project enquiries please get in touch.

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HIP V. HYPE Sustainability Pty Ltd is a Climate Active certified carbon neutral business.

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Appendix F: BESS Assessment

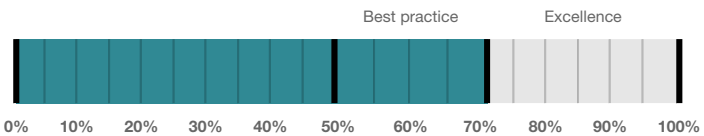
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 511 Sydney Rd Coburg Victoria 3058. 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 Merri-bek City Council (Moreland).

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



71%

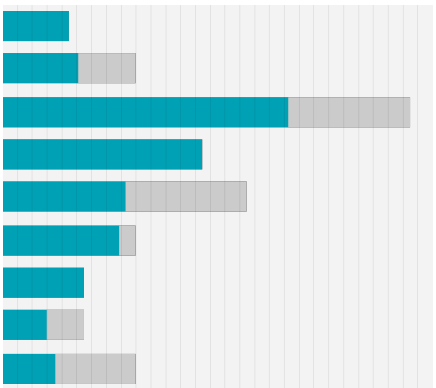
Project details

Address	511 Sydney Rd Coburg Victoria 3058
Project no	10BC9E6C-R2
BESS Version	BESS-7
Site type	Mixed use development
Account	david@hipvhype.com
Application no.	
Site area	6,631.00 m²
Building floor area	24,960.20 m²
Date	16 February 2024
Software version	1.8.1-B.407

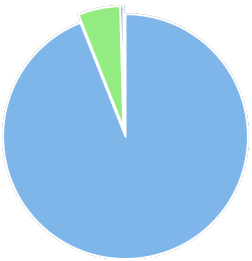
Performance by category

Your development · Maximum available

Category	Weight	Score	Pass
Management	5%	99%	·
Water	9%	57%	✓
Energy	28%	70%	✓
Stormwater	14%	100%	✓
IEQ	17%	50%	✓
Transport	9%	88%	·
Waste	6%	100%	·
Urban Ecology	6%	55%	·
Innovation	9%	40%	·



Building Type composition



Apartment · Office · Shop

Buildings

Name	Height	Footprint	% of total footprint
Building 1	16	4,980 m^2	100%

Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	Building	% of total area
Apartment				
2B2B	103	75.0 m^2	Building 1	30%
1B1B	75	60.0 m^2	Building 1	18%
2B1B	53	70.0 m^2	Building 1	14%
3B1B	40	85.0 m^2	Building 1	13%
3B2B	29	102 m^2	Building 1	11%
1BC	26	45.0 m^2	Building 1	4%
Total	**326**	**23,463 m^2**	**94%**	

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Office				
Commercial	1	1,051 m^2	Building 1	4%
Assemble	1	342 m^2	Building 1	1%
Total	**2**	**1,393 m^2**	**5%**	
Shop				
Retail	1	103 m^2	Building 1	< 1%
Total	**1**	**103 m^2**	**< 1%**	

Supporting information

Floorplans & elevation notes

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)		-
Energy 3.4	Location of clothes line (if proposed)		-
Energy 4.2	Location and size of solar photovoltaic system		-
Stormwater 1.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
IEQ 1.1	If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.		-
IEQ 1.2	If using BESS daylight calculator, references to floorplans and elevations showing window sizes and sky angles.		-

Credit	Requirement	Response	Status
IEQ 1.5	Floor plans with compliant bedrooms marked		-
Transport 1.1	Location of residential bicycle parking spaces		-
Transport 1.2	Location of residential visitor bicycle parking spaces		-
Transport 1.3	Residential bicycle parking spaces at ground level		-
Transport 1.4	Location of non-residential bicycle parking spaces		-
Transport 1.5	Location of non-residential visitor bicycle parking spaces		-
Transport 1.6	Location of showers, change rooms and lockers as nominated		-
Transport 2.1	Location of electric vehicle charging infrastructure		-
Transport 2.2	Location of car share parking space(s)		-
Waste 2.1	Location of food and garden waste facilities		-
Waste 2.2	Location of recycling facilities		-
Urban Ecology 1.1	Location and size of communal spaces		-
Urban Ecology 2.1	Location and size of vegetated areas		-
Urban Ecology 2.2	Location and size of green roof		-
Urban Ecology 2.4	Location of taps and floor waste on balconies / courtyards		-

Supporting evidence

Credit	Requirement	Response	Status
Management 2.2	Preliminary NatHERS assessments		-
Management 2.3a	Section J glazing assessment		-
Energy 1.1	Energy Report showing calculations of reference case and proposed buildings		-
Energy 3.6	Average lighting power density and lighting type(s) to be used		-
Energy 3.7	Average lighting power density and lighting type(s) to be used		-
Energy 4.2	Specifications of the solar photovoltaic system(s)		-
Stormwater 1.1	STORM report or MUSIC model		-
IEQ 1.1	If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.		-
IEQ 1.2	If using an alternative daylight modelling program, a short report detailing assumptions used and results achieved.		-
IEQ 1.4	A short report detailing assumptions used and results achieved.		-
IEQ 1.5	A list of compliant bedrooms		-

Credit summary

Management Overall contribution 4.5%

99%

1.1 Pre-Application Meeting	100%
2.2 Thermal Performance Modelling - Multi-Dwelling Residential	100%
2.3 Thermal Performance Modelling - Non-Residential	50%
3.1 Metering - Residential	100%
3.2 Metering - Non-Residential	100%
3.3 Metering - Common Areas	100%
4.1 Building Users Guide	100%

Water Overall contribution 9.0%

Minimum required 50%	57%	✔ Pass

1.1 Potable Water Use Reduction	60%	
3.1 Water Efficient Landscaping	0%	
4.1 Building Systems Water Use Reduction	100%	

Energy Overall contribution 27.5%

Minimum required 50%	70%	✔ Pass

1.1 Thermal Performance Rating - Non-Residential	37%	
1.2 Thermal Performance Rating - Residential	66%	
2.1 Greenhouse Gas Emissions	100%	
2.2 Peak Demand	5%	
2.3 Electricity Consumption	100%	
2.4 Gas Consumption	N/A	Scoped Out
		No gas connection in use
2.6 Electrification	100%	
3.1 Carpark Ventilation	0%	
3.2 Hot Water	100%	
3.4 Clothes Drying	100%	
3.6 Internal Lighting - Apartments	100%	
3.7 Internal Lighting - Non-Residential	100%	
4.1 Combined Heat and Power (cogeneration / trigeneration)	N/A	Scoped Out
		No cogeneration or trigeneration system in use.
4.2 Renewable Energy Systems - Solar	100%	
4.4 Renewable Energy Systems - Other	0%	Disabled
		No other (non-solar PV) renewable energy is in use.

Stormwater Overall contribution 13.5%

Minimum required 100%	100%	✔ Pass

1.1 Stormwater Treatment	100%	

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IEQ Overall contribution 16.5%

Minimum required 50%	50%	✔ 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	100%	✔ Achieved
1.5 Daylight Access - Minimal Internal Bedrooms	100%	
2.1 Effective Natural Ventilation	0%	
2.3 Ventilation - Non-Residential	100%	✔ Achieved
3.4 Thermal comfort - Shading - Non-Residential	100%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential	100%	
4.1 Air Quality - Non-Residential	100%	

Transport Overall contribution 9.0%

	88%
1.1 Bicycle Parking - Residential	100%
1.2 Bicycle Parking - Residential Visitor	100%
1.3 Bicycle Parking - Convenience Residential	100%
1.4 Bicycle Parking - Non-Residential	100%
1.5 Bicycle Parking - Non-Residential Visitor	100%
1.6 End of Trip Facilities - Non-Residential	100%
2.1 Electric Vehicle Infrastructure	100%
2.2 Car Share Scheme	100%
2.3 Motorbikes / Mopeds	0%

Waste Overall contribution 5.5%

	100%	
1.1 - Construction Waste - Building Re-Use	N/A	Scoped Out
	No existing building on the site	
2.1 - Operational Waste - Food & Garden Waste	100%	
2.2 - Operational Waste - Convenience of Recycling	100%	

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Urban Ecology Overall contribution 5.5%

55%

1.1 Communal Spaces	100%
2.1 Vegetation	50%
2.2 Green Roofs	100%
2.3 Green Walls and Facades	0%
2.4 Private Open Space - Balcony / Courtyard Ecology	100%
3.1 Food Production - Residential	0%
3.2 Food Production - Non-Residential	0%

Innovation Overall contribution 9.0%

40%

1.1 Innovation	40%

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Credit breakdown

Management Overall contribution 4%

1.1 Pre-Application Meeting		100%
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	Yes	
2.2 Thermal Performance Modelling - Multi-Dwelling Residential		100%
Score Contribution	This credit contributes 23.5% 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		50%
Score Contribution	This credit contributes 1.5% towards the category score.	
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2019 Section J1.5?	
Question	Criteria Achieved ?	
Office	Yes	
Shop	Yes	
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2019 Section J (Energy Efficiency), NABERS or Green Star?	
Question	Criteria Achieved ?	
Office	No	
Shop	No	
3.1 Metering - Residential		100%
Score Contribution	This credit contributes 11.8% 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 0.7% towards the category score.	
Criteria	Have utility meters been provided for all individual commercial tenants?	
Question	Criteria Achieved ?	
Office	Yes	
Shop	Yes	

3.3 Metering - Common Areas	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Have all major common area services been separately submetered?
Question	Criteria Achieved ?
Apartment	Yes
Office	Yes
Shop	Yes

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

Water

Overall contribution 5% Minimum required 50%

Water Approach	
What approach do you want to use for Water?:	Provide our own calculations

Rainwater Tank	
What is the total roof area connected to the rainwater tank?: Tank 1	2,738 m²
Tank Size: Tank 1	40,000 Litres
Irrigation area connected to tank: Tank 1	-
Is connected irrigation area a water efficient garden?: Tank 1	Yes
Other external water demand connected to tank?: Tank 1	-

1.1 Potable Water Use Reduction	60%
Score Contribution	This credit contributes 71.4% 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.
Question	Percentage Achieved ?
Project	40 %

3.1 Water Efficient Landscaping	0%
Score Contribution	This credit contributes 14.3% towards the category score.
Criteria	Will water efficient landscaping be installed?
Question	Criteria Achieved ?
Project	No

4.1 Building Systems Water Use Reduction	100%
Score Contribution	This credit contributes 14.3% 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

Energy

Overall contribution 20% Minimum required 50%

Use the BESS Deem to Satisfy (DtS) method for Energy?:	Yes
Do all exposed floors and ceilings (forming part of the envelope) demonstrate a minimum 10% improvement in required NCC2019 insulation levels (total R-value upwards and downwards)?:	Yes
Does all wall and glazing demonstrate meeting the required NCC2019 facade calculator (or better than the total allowance)?:	Yes
Are heating and cooling systems within one Star of the most efficient equivalent capacity unit available, or Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available?:	Yes
Are water heating systems within one star of the best available, or 85% or better than the most efficient equivalent capacity unit?:	Yes
Dwellings Energy Approach	
What approach do you want to use for Energy?:	Use the built in calculation tools
Project Energy Profile Question	
Are you installing any solar photovoltaic (PV) system(s)?:	Yes
Are you installing any other renewable energy system(s)?:	No
Energy Supply:	All-electric
Dwelling Energy Profiles	
Building: All	Building 1
Below the floor is: All	Another Occupancy
Above the ceiling is: All	Another Occupancy
Exposed sides:	
1BC 1B1B 2B1B	1
2B2B 3B1B 3B2B	2
NatHERS Annual Energy Loads - Heat: All	70.0 MJ/sqm
NatHERS Annual Energy Loads - Cool: All	8.0 MJ/sqm
NatHERS star rating: All	7.6
Type of Heating System: All	Reverse cycle central other
Heating System Efficiency: All	5 Star
Type of Cooling System: All	Refrigerative central other
Cooling System Efficiency: All	5 Stars
Type of Hot Water System: All	Electric Heat Pump Band 3
Is the hot water system shared by multiple dwellings?: All	Yes
Clothes Line: All	Shared clothesline
Clothes Dryer: All	Shared heat pump dryer

Non-Residential Building Energy Profile	
Heating, Cooling & Comfort Ventilation - Electricity Reference fabric & services:	-
Heating, Cooling & Comfort Ventilation - Electricity - proposed fabric and reference services:	-
Heating, Cooling & Comfort Ventilation - Electricity Proposed fabric & services:	-
Heating - Wood - reference fabric and services:	-
Heating - Wood - proposed fabric and reference services:	-
Heating - Wood - proposed fabric and services:	-
Hot Water - Electricity - Reference:	-
Hot Water - Electricity - Proposed:	-
Lighting - Reference:	-
Lighting - Proposed:	-
Peak Thermal Cooling Load - Reference:	-
Peak Thermal Cooling Load - Proposed:	-

Solar Photovoltaic systems	
System Size (lesser of inverter and panel capacity):	
Residential	50.0 kW peak
Commercial	8.0 kW peak
Retail	2.0 kW peak
Orientation (which way is the system facing)?:	
Residential	North
Commercial	North
Retail	North
Inclination (angle from horizontal):	
Residential	10.0 Angle (degrees)
Commercial	10.0 Angle (degrees)
Retail	10.0 Angle (degrees)
Which Building Class does this apply to?:	
Residential	Apartment
Commercial	Office
Retail	Shop

1.1 Thermal Performance Rating - Non-Residential		37%
Score Contribution	This credit contributes 2.3% towards the category score.	
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC 2019 Section J)?	

1.2 Thermal Performance Rating - Residential		66%
Score Contribution	This credit contributes 26.8% towards the category score.	
Criteria	What is the average NatHERS rating?	
Output	Average NATHERS Rating (Weighted)	
Apartment	7.6 Stars	

2.1 Greenhouse Gas Emissions		100%
Score Contribution	This credit contributes 9.5% 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	2,086,783 kg CO2	
Output	Proposed Building with Proposed Services (Actual Building)	
Apartment	383,606 kg CO2	
Output	% Reduction in GHG Emissions	
Apartment	81 %	
2.2 Peak Demand		5%
Score Contribution	This credit contributes 4.7% towards the category score.	
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?	
Output	Peak Thermal Cooling Load - Baseline	
Apartment	3,705 kW	
Output	Peak Thermal Cooling Load - Proposed	
Apartment	3,475 kW	
Output	Peak Thermal Cooling Load - % Reduction	
Apartment	6 %	
2.3 Electricity Consumption		100%
Score Contribution	This credit contributes 9.5% towards the category score.	
Criteria	What is the % reduction in annual electricity consumption against the benchmark?	
Output	Reference	
Apartment	2,045,866 kWh	
Output	Proposed	
Apartment	376,084 kWh	
Output	Improvement	
Apartment	81 %	
2.4 Gas Consumption		N/A Scoped Out
This credit was scoped out	No gas connection in use	
2.6 Electrification		100%
Score Contribution	This credit contributes 9.5% towards the category score.	
Criteria	Is the development all-electric?	
Question	Criteria Achieved?	
Project	Yes	

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3.1 Carpark Ventilation		0%
Score Contribution	This credit contributes 9.5% towards the category score.	
Criteria	If you have an enclosed carpark, is it: (a) fully naturally ventilated (no mechanical ventilation system) or (b) 40 car spaces or less with Carbon Monoxide monitoring to control the operation and speed of the ventilation fans?	
Question	Criteria Achieved ?	
Project	No	
3.2 Hot Water		100%
Score Contribution	This credit contributes 4.7% towards the category score.	
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?	
Output	Reference	
Apartment	3,474,377 MJ	
Output	Proposed	
Apartment	69,900 MJ	
Output	Improvement	
Apartment	97 %	
3.4 Clothes Drying		100%
Score Contribution	This credit contributes 4.5% 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	147,844 kWh	
Output	Proposed	
Apartment	61,393 kWh	
Output	Improvement	
Apartment	58 %	
3.6 Internal Lighting - Apartments		100%
Score Contribution	This credit contributes 8.9% 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 Table J6.2a of the NCC 2019 Vol 1 (Class 2-9)?	
Question	Criteria Achieved ?	
Apartment	Yes	
3.7 Internal Lighting - Non-Residential		100%
Score Contribution	This credit contributes 0.6% 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 J6.2a of the NCC 2019 Vol 1?	
Question	Criteria Achieved ?	
Office	Yes	
Shop	Yes	

4.1 Combined Heat and Power (cogeneration / trigeneration)		N/A	Scoped Out
This credit was scoped out	No cogeneration or trigeneration system in use.		
4.2 Renewable Energy Systems - Solar		100%	
Score Contribution	This credit contributes 4.7% towards the category score.		
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?		
Output	Solar Power - Energy Generation per year		
Apartment	60,592 kWh		
Office	9,695 kWh		
Shop	2,424 kWh		
Output	% of Building's Energy		
Apartment	16 %		
Office	22 %		
Shop	20 %		
4.4 Renewable Energy Systems - Other		0%	Disabled
This credit is disabled	No other (non-solar PV) renewable energy is in use.		

Stormwater

Overall contribution 14% Minimum required 100%

Which stormwater modelling are you using?:	Melbourne Water STORM tool	
1.1 Stormwater Treatment		100%
Score Contribution	This credit contributes 100.0% towards the category score.	
Criteria	Has best practice stormwater management been demonstrated?	
Question	STORM score achieved	
Project	100	
Output	Min STORM Score	
Project	100	

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IEQ

Overall contribution 8% Minimum required 50%

IEQ DTS		
Use the BESS Deemed to Satisfy (DtS) method for IEQ?:	No	
Dwellings IEQ Approach		
What approach do you want to use for dwellings?:	Provide our own calculations	
1.1 Daylight Access - Living Areas	66%	
Score Contribution	This credit contributes 24.8% towards the category score.	
Criteria	What % of living areas achieve a daylight factor greater than 1%	
Question	Percentage Achieved ?	
Apartment	84 %	
1.2 Daylight Access - Bedrooms	66%	
Score Contribution	This credit contributes 24.8% towards the category score.	
Criteria	What % of bedrooms achieve a daylight factor greater than 0.5%	
Question	Percentage Achieved ?	
Apartment	94 %	
1.3 Winter Sunlight	0%	
Score Contribution	This credit contributes 8.3% 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	100%	✔ Achieved
Score Contribution	This credit contributes 3.2% towards the category score.	
Criteria	What % of the nominated floor area has at least 2% daylight factor?	
Question	Percentage Achieved?	
Office	100 %	
Shop	100 %	
1.5 Daylight Access - Minimal Internal Bedrooms	100%	
Score Contribution	This credit contributes 8.3% towards the category score.	
Criteria	Do at least 90% of dwellings have an external window in all bedrooms?	
Question	Criteria Achieved ?	
Apartment	Yes	
2.1 Effective Natural Ventilation	0%	
Score Contribution	This credit contributes 24.8% towards the category score.	
Criteria	What % of dwellings are effectively naturally ventilated?	
Question	Percentage Achieved?	
Apartment	50 %	

2.3 Ventilation - Non-Residential		100%	✔ Achieved
Score Contribution	This credit contributes 3.2% towards the category score.		
Criteria	What % of the regular use areas are effectively naturally ventilated?		
Question	Percentage Achieved?		
Office	100 %		
Shop	100 %		
Criteria	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668.2:2012?		
Question	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668:2012?		
Office	50 %		
Shop	50 %		
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?		
Question	Value		
Office	800 ppm		
Shop	800 ppm		
3.4 Thermal comfort - Shading - Non-Residential		100%	
Score Contribution	This credit contributes 1.6% towards the category score.		
Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?		
Question	Percentage Achieved?		
Office	100 %		
Shop	100 %		
3.5 Thermal Comfort - Ceiling Fans - Non-Residential		100%	
Score Contribution	This credit contributes 0.5% towards the category score.		
Criteria	What percentage of regular use areas in tenancies have ceiling fans?		
Question	Percentage Achieved?		
Office	100 %		
Shop	100 %		
4.1 Air Quality - Non-Residential		100%	
Score Contribution	This credit contributes 0.5% towards the category score.		
Criteria	Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits?		
Question	Criteria Achieved ?		
Office	Yes		
Shop	Yes		
Criteria	Does all carpet meet the maximum total indoor pollutant emission limits?		
Question	Criteria Achieved ?		
Office	Yes		
Shop	Yes		

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

Transport Overall contribution 8%

1.1 Bicycle Parking - Residential	100%
Score Contribution	This credit contributes 21.0% towards the category score.
Criteria	How many secure and undercover bicycle spaces are there per dwelling for residents?
Annotation	Note that Residential and Residential Visitors parking are included together at a total of 562 spaces
Question	Bicycle Spaces Provided ?
Apartment	496
Output	Min Bicycle Spaces Required
Apartment	326

1.2 Bicycle Parking - Residential Visitor	100%
Score Contribution	This credit contributes 21.0% towards the category score.
Criteria	How many secure bicycle spaces are there per 5 dwellings for visitors?
Annotation	Note that Residential and Residential Visitors parking are included together at a total of 562 spaces
Question	Visitor Bicycle Spaces Provided ?
Apartment	66
Output	Min Visitor Bicycle Spaces Required
Apartment	66

1.3 Bicycle Parking - Convenience Residential	100%
Score Contribution	This credit contributes 10.5% towards the category score.
Criteria	Are bike parking facilities for residents located at ground or entry level?
Question	Criteria Achieved ?
Apartment	Yes

1.4 Bicycle Parking - Non-Residential	100%
Score Contribution	This credit contributes 1.3% towards the category score.
Criteria	Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50% (or a minimum of 2 where there is no planning scheme requirement)?
Question	Criteria Achieved ?
Office	Yes
Shop	Yes
Question	Bicycle Spaces Provided ?
Office	5
Shop	2

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1.5 Bicycle Parking - Non-Residential Visitor	100%
Score Contribution	This credit contributes 0.7% towards the category score.
Criteria	Have the planning scheme requirements for visitor bicycle parking been exceeded by at least 50% (or a minimum of 1 where there is no planning scheme requirement)?
Question	Criteria Achieved ?
Office	Yes
Shop	Yes
Question	Bicycle Spaces Provided ?
Office	30
Shop	6

1.6 End of Trip Facilities - Non-Residential	100%
Score Contribution	This credit contributes 0.7% towards the category score.
Criteria	Where adequate bicycle parking has been provided. Is there also: * 1 shower for the first 5 employee bicycle spaces plus 1 to each 10 employee bicycles spaces thereafter, * changing facilities adjacent to showers, and * one secure locker per employee bicycle space in the vicinity of the changing / shower facilities?
Question	Number of showers provided ?
Office	1
Shop	1
Question	Number of lockers provided ?
Office	16
Shop	2
Output	Min Showers Required
Office	1
Shop	1
Output	Min Lockers Required
Office	5
Shop	2

2.1 Electric Vehicle Infrastructure	100%
Score Contribution	This credit contributes 22.4% towards the category score.
Criteria	Are facilities provided for the charging of electric vehicles?
Question	Criteria Achieved ?
Project	Yes

2.2 Car Share Scheme	100%
Score Contribution	This credit contributes 11.2% towards the category score.
Criteria	Has a formal car sharing scheme been integrated into the development?
Question	Criteria Achieved ?
Project	Yes

2.3 Motorbikes / Mopeds	0%
Score Contribution	This credit contributes 11.2% 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

Overall contribution 6%

1.1 - Construction Waste - Building Re-Use	N/A	Scoped Out
This credit was scoped out	No existing building on the site	

2.1 - Operational Waste - Food & Garden Waste	100%
Score Contribution	This credit contributes 50.0% 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 50.0% 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 3%

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	1,000 m²	
Office	100 m²	
Shop	10.0 m²	
Output	Minimum Common Space Required	
Apartment	291 m²	
Office	80 m²	
Shop	10 m²	
2.1 Vegetation		50%
Score Contribution	This credit contributes 44.7% 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	10 %	
2.2 Green Roofs		100%
Score Contribution	This credit contributes 11.2% towards the category score.	
Criteria	Does the development incorporate a green roof?	
Annotation	Green and brown roof and podium areas	
Question	Criteria Achieved ?	
Project	Yes	
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 Private Open Space - Balcony / Courtyard Ecology		100%
Score Contribution	This credit contributes 10.5% towards the category score.	
Criteria	Is there a tap and floor waste on every balcony / in every courtyard?	
Question	Criteria Achieved ?	
Apartment	Yes	

3.1 Food Production - Residential		0%
Score Contribution	This credit contributes 10.5% 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	154 m²	

3.2 Food Production - Non-Residential		0%
Score Contribution	This credit contributes 0.7% towards the category score.	
Criteria	What area of space per occupant is dedicated to food production?	
Question	Food Production Area	
Office	-	
Shop	-	
Output	Min Food Production Area	
Office	28 m²	
Shop	3 m²	

Innovation

Overall contribution 4%

Innovations	
Description:	
Affordable Housing	Build to Rent to Own - A 'build to rent to own' partnership model offering tenure security and an alternative to home ownership by providing short and long term rental accommodation options.
Net Zero Energy	Building to target net zero in operations. A key component of this approach is the delivery of highly efficient dwellings (min 7.5-star average NatHERS), coupled with 100% renewable energy supply, in a fossil-fuel free development. On-site solar photovoltaic electricity generation complements this efficiency and zero-carbon energy commitment via a Green Power bulk purchase agreement via the embedded network.
Biocomposters	Food and organics biocomposter will be provided for the development
Points Targeted:	
Affordable Housing	1
Net Zero Energy	1
Biocomposters	2

1.1 Innovation		40%
Score Contribution	This credit contributes 100.0% towards the category score.	
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?	

ADVERTISED PLAN

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We respectfully acknowledge that every project enabled or assisted by HIP V. HYPE in Australia exists on traditional Aboriginal lands which have been sustained for thousands of years.

We honour their ongoing connection to these lands, and seek to respectfully acknowledge the Traditional Custodians in our work.

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For additional information, questions unturned, collaboration opportunities and project enquiries please get in touch.

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