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LBS REFERENCE NUMBER
LBS_10226

DATE
30/07/2021

SUSTAINABLE MANAGEMENT PLAN

PROJECT NAME
Latrobe Street Wing Extension

PROJECT ADDRESS
113 Warrigal Rd, Hughesdale VIC 3166

BUILDING CLASS
9

CLIMATE ZONE
6

REPORT COMMISSIONED BY
BRT Consulting Pty Ltd

ON BEHALF OF
Sacred Heart Girls College

CLIENT REFERENCE NUMBER
2101

CONTENTS

DOCUMENT CONTROL

Revision	Date	Description	Author	Reviewed
V1.0	*Monday, 19 July 2021*	*For Review*	*NG*	*JM*
V1.1	*Thursday, 29 July 2021*	*For Submission*	*JM*	*NG*
V1.2	*Friday, 30 July 2021*	*For Submission*	*JM*	*NG*

1.0 INTRODUCTION

The City of Monash is committed to creating an environmentally sustainable and liveable city by incorporating environmentally sustainable design into new developments. As a participating member of Sustainable Design Assessment in the Planning Process (SDAPP), the council has identified the following key elements as part of Clause 22.13*:*

Indoor Environment Quality

Energy Efficiency

Water Efficiency

Stormwater Management

Building Materials

Transport

Waste Management

Urban Ecology

Innovation

Construction & Building Management

This Sustainable Management Plan (SMP) has been prepared to establish how the proposed development will address the objectives of Clause 22.13 and assist the project team during the design, construction, and operation process.

ESD ASSESSMENT TOOLS

The Built Environment Sustainability Scorecard (BESS) has been used as the primary rating tool to assess the proposed development against the objectives outlined above.

The following secondary tools and / or modelling programs have also been used as relevant benchmarks:

- *NCC Volume 1 Section J*
- *Australian Standards*
- *ASHRAE*
- *STORM Water Calculator*
- *Green Star Design & As Built V1.3*
- *Walk Score*

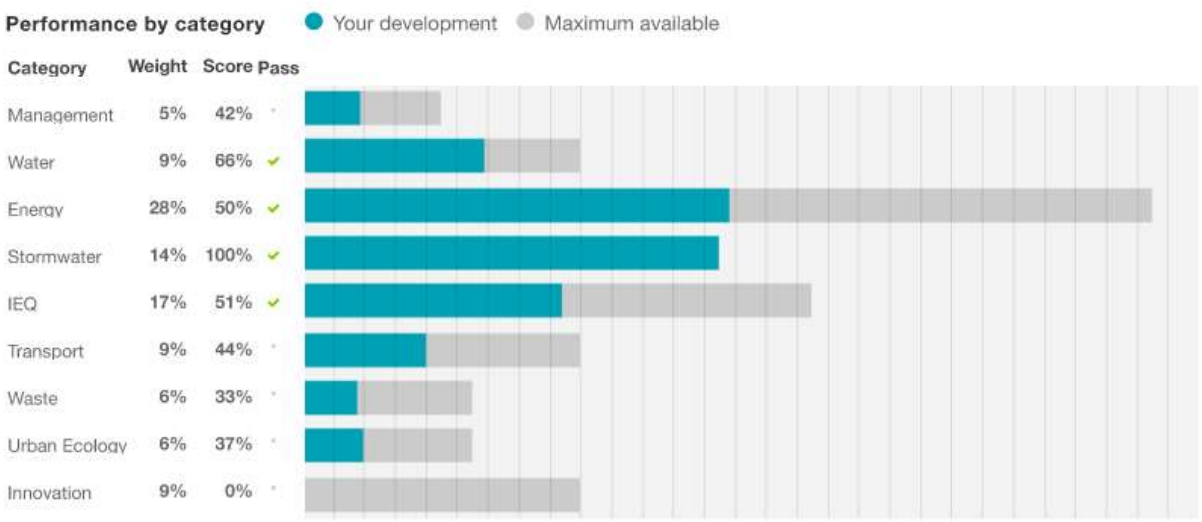


Figure 1 - BESS Score

ENVIRONMENTAL SUSTAINABLE DESIGN (ESD) STRATEGY

The project team has collaborated to consider ESD principles and initiatives during the design phase, these principles have been based on the following ESD hierarchy:

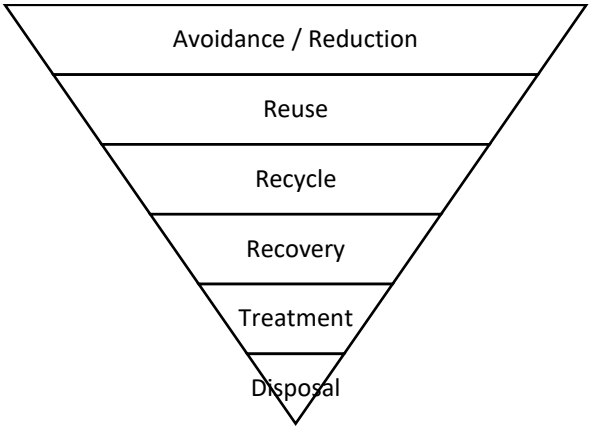


Figure 2 - ESD Hierarchy

SITE DESCRIPTION

Proposed building works	Latrobe Street Wing Extension
Total Building Area	1,185 m^2
Total Site	12,848 m^2

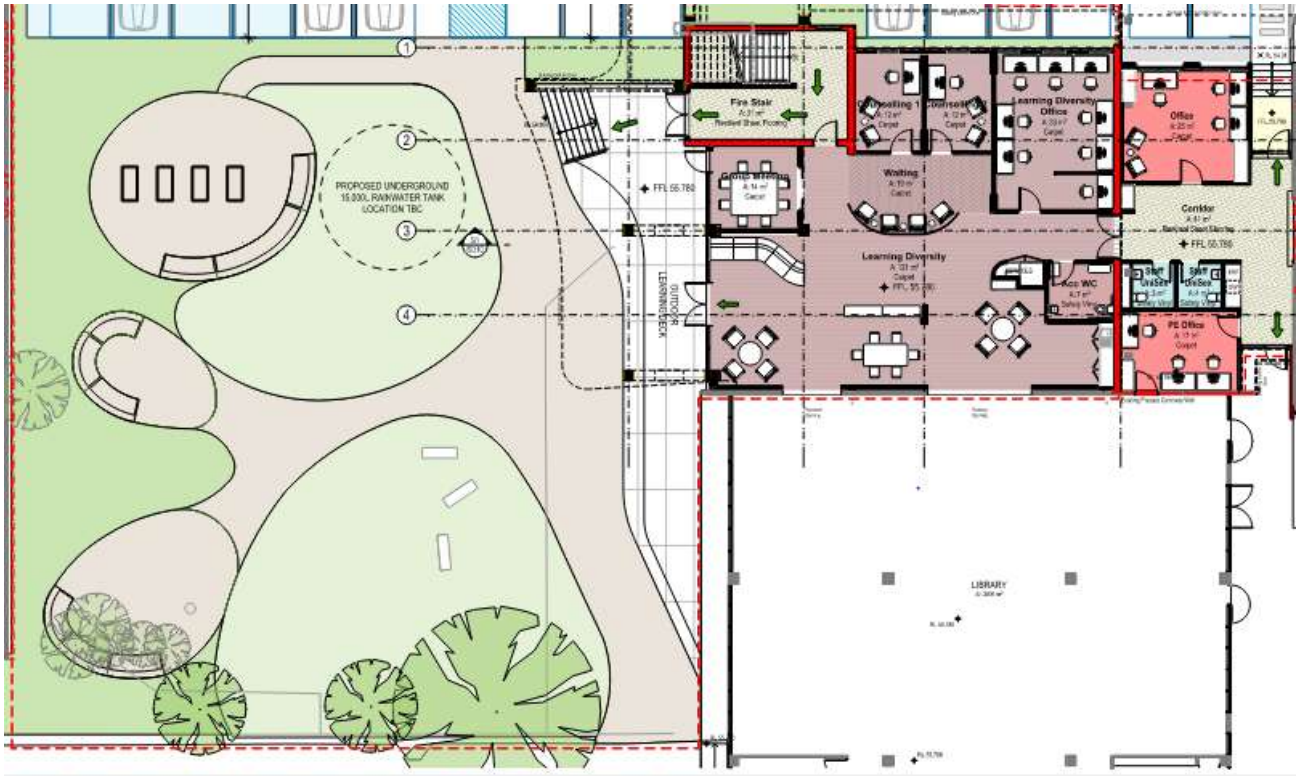


Figure 3 – Proposed development

2.0 SUSTAINABLE INITIATIVES

The following sections outline the sustainable initiatives that will be incorporated into the design, construction, and operation of the proposed development. In addition, this section outlines applicable standards and nominates appropriate project stakeholder responsibly. **All responsibilities of the Architect are to be documented on the plans prior to council submission.**

MANAGEMENT / BUILDING MANAGEMENT

Goals

- ✓ Sustainable principles are to be integrated from concept through to construction and operation of the proposed development
- ✓ Future proof the proposed development for future occupants
- ✓ Key building services and relevant information are accessible for occupants

Design Requirement	*Responsibility*	*Standard*	*Design Response*
Thermal Performance Modelling	ESD	BESS MAN 2.2-4	Preliminary Section J (JV3) modelling and façade assessment has been undertaken
On-going Management	Development Manager	Best Practice	The building manager is responsible for the implementation, monitoring, maintenance, and review of all initiatives outlined in this report. This report and all supporting ESD reports are to be included in all document packs for the building manager and tenants
Stormwater Management	Development Manager	Best Practice	A stormwater pollution reduction strategy for the building construction works will be prepared.

WATER

Goals

- ✓ Ensure the efficient use of water
- ✓ Reduce dependency on potable water
- ✓ Encourage use of alternative water sources
- ✓ Promote use of water efficient landscaping
- ✓ Minimise associated water costs

Design Requirement	*Responsibility*	*Standard*	*Design Response*
Water Fixtures	Architect	BESS WAT 1.1	The development will include efficient fitting and fixtures to reduce the consumption of mains water. The following Water Efficiency Labelling Scheme (WELS) star rating products are required: -Kitchen Taps: ≥ 5 Star WELS -Bathroom Taps: ≥ 5 Star WELS -Dishwashers: ≥ 4 Star WELS (if applicable) -WC: ≥ 4 Star WELS
Rainwater Collection	Civil, Architect	BESS WAT 1.1	Rainwater tank ≥15,000L to be connected to the following catchment areas: -Main roof canopy (410m^2) Tank to be connected to: -≥ All new toilets
Water Efficient Landscaping	Architect	BESS WAT 3.1	-Water efficient / drought tolerant plants to be installed to all landscaped areas -If irrigation is required during plant establishment, drip or sub surface irrigation to be used
Building System Water Use Reduction	Development Manager	BESS WAT 4.1	- HVAC system to use air cooled condenser components - No fire sprinklers to be installed

ENERGY EFFICIENCY

Goals

- ✓ Ensure energy efficiency is incorporated into the planning and design of the proposed development
- ✓ Reduce greenhouse gas emissions
- ✓ Reduce peak energy demand
- ✓ Promote the use of alternative energy sources

Design Requirement	*Responsibility*	*Standard*	*Design Response*
Preliminary Modelling	ESD, Services	BESS MAN 2.2-4 BESS ENE 1.1 -2	Preliminary Section J – JV3 energy modelling outlines the proposed design annual heating and cooling energy consumption is: -3% below the reference case **Specification Requirement:** -Reflective sarking under roof cladding with reflective side facing downwards -R4.0 insulation to all ceilings -R2.0 insulation to all external walls -R2.0 insulation to all external/suspended floors -All external glazing must meet or exceed the following performance: U≤2.8, SHGC≤0.5
Indoor Lighting	Services, Architect	BESS ENE 3.7	Maximum illumination power density in at least 90% of the area meets the requirements of Table J6.2a NCC 2019 Vol1. All lighting to be LED lighting
External Lighting	Services, Architect	Best Practice	Daylight and occupancy sensors to be fitted to external lighting in accordance with NCC Vol1.
Shading	ESD	Best Practice	Preliminary JV3 modelling outlines that the proposed façade shading design operates in cohesion with the overall design and assists in reducing predicted annual heating and cooling loads.
Renewable Energy	Services, Architect	Best Practice	Proposed on-site renewable energy generation offsets 71% of the building's estimated energy consumption. PV = ≥10kW Inverter = ≥10kW Panel Tilt = ≥36°

STORMWATER

Goals

- ✓ Ensure best practice stormwater treatment practices are incorporated into the planning and design of the propose development
- ✓ Reduce stormwater runoff
- ✓ Improve water quality of stormwater runoff

Design Requirement	*Responsibility*	*Standard*	*Design Response*
Stormwater	Civil	BESS STORM 1.1	Best practice Stormwater Quality is to be verified by a STORM Calculator score 103% Stormwater requirements: Rainwater tank ≥15,000L to be connected to the following catchment areas: -Main roof canopy (410m^2) Tank to be connected to: -≥ All new toilets Tank and pump design to be confirmed by CIVIL consultant.

INDOOR ENVIRONMENTAL QUALITY

Goals

- ✓ Ensure healthy indoor environmental quality for the wellbeing of occupants
- ✓ Air quality, natural ventilation and daylight access is to be considered in the design of the proposed development
- ✓ Noise control
- ✓ Shading and glare control

Design Requirement	*Responsibility*	*Standard*	*Design Response*
Daylight Access	ESD	BESS IEQ 1.4	Daylight Green Star Hand Calculations have been completed and outline the proposed design achieves 39.5%. Refer to separate daylight calculations completed by BRT (Appendix C)
Ventilation Systems	Services	GBCA 9.1.1	Mechanical Ventilation Systems will be designed / located to provide adequate access for maintenance, to both sides of all moisture / debris catching components, within the air distribution system.
Low VOC	Development Manager, Architect	BESS IEQ 4.1	All paints, adhesives, sealants (by volume) or carpets (by area) meet the total VOC limits specified in Appendix A or relevant certification scheme (e.g. GECA, Global GreenTag, GreenRate).
Fresh Air	Services	BESS IEQ 2.3	Outdoor air to be provided at a rate of 100% greater than the minimum required by AS1668.2:2012

TRANSPORT

Goals

- ✓ Promote alternative forms of low emission transport such as walking, cycling, public transport

Design Requirement	*Responsibility*	*Standard*	*Design Response*
Bicycle Parking	Architect	BESS TRAN 1.5	The proposed development does not increase the predicated occupancy of the school and therefore not applicable to current planning scheme requirements. With this in mind, the following additional bicycle parking spaces are required to meet BESS TRAN 1.5 and best practice. Bicycle parking requirements: -2 employee bicycle spaces provided in a lockable compound. -1 visitor bicycle spaces provided in a convenient location. -Signage installed in accordance with VPP planning provisions -Design of bicycle spaces to be in accordance with VPP 52.34

WASTE

Goals

- ✓ Promote waste avoidance, re-use and recycling during the planning, design, construction, and operation of the proposed development
- ✓ Consider food and garden waste opportunities

Design Requirement	*Responsibility*	*Standard*	*Design Response*
Construction Waste	Development Manager	Best Practice	≥ 80% of demolition waste (by mass) will be recycled or re-used. The builder will develop a construction waste management plan for the demolition, pre-construction, civil works and construction phase In addition: -Standard sizes materials and / or prefabricated materials will be used where possible -Demolition / construction waste will be separated into recyclable categories, e.g., plastics, cardboard, metal/cable offcuts, concrete and rubble
Operational Waste	Architect	BESS WAS 2.2	Waste recycling facilities will be as conveniently located as those for general waste.
On-going Management	Development Manager	WMP	On-going waste management is the responsibility of the development manager.

URBAN ECOLOGY

Goals

- ✓ Consider green spaces that focus on health, social, environmental, and economic benefits
- ✓ Encourage and consider the retention of existing significant trees
- ✓ Climatic conditions and minimal use of potable water

Design Requirement	*Responsibility*	*Standard*	*Design Response*
Communal Spaces	ESD	BESS URBAN 1.1	Communal spaces where people gather for social exchange is > 84 m^2
Vegetations	Development Manager, Architect	BESS URBAN 2.1	17% of the existing and proposed site is covered with vegetation. Refer to Landscape Plan

CONSTRUCTION / BUILDING MATERIALS

Goals

- ✓ Promote waste avoidance, re-use and recycling during the planning, design, construction, and operation of the propose development
- ✓ Consider maintenance and durability in the selection of materials
- ✓ Consider embodied energy and life cycle costs in material selection
- ✓ Consider material re-use and materials with recycled content

Design Requirement	*Responsibility*	*Standard*	*Design Response*
Sustainable Materials	ESD	Best Practice	Consideration has been given to the choice of materials during the design phase: -Concrete has been specified to some of the structure, whilst this contains a high level of embodied energy it has a positive impact on the passive design / operational performance. This is demonstrated in the preliminary JV3 results -Any timber used in the design will generally be sourced from sustainably managed plantations. Refer to the Moreland Greenlist for examples on products / suppliers: http://www.sustainablesteps.com.au/pdf/Moreland_Greenlist_050905v2.0.pdf
Maintenance / Durability	ESD	Best Practice	Durable low maintenance building fabric materials (aluminium windows, steel sheet, concrete) have been specified to reduce to need for maintenance / replacement during lifecycle of the building
Stormwater Pollution Reduction	Development Manager	Best Practice	A stormwater pollution reduction strategy implemented as part of the building construction works
Heat Island	Development Manager, Architect	Best Practice	All roof material of the main roof canopy to have a minimum initial solar reflectance index of 82 (Surfmist or the like).

4.0 CONCLUSION

The contents of this SMP assess the proposed development against the City of Monash sustainable objectives. The following benchmarks have been referenced:

Primary Benchmarks

- Built Environmental Scorecard (BESS) score 51%

Secondary Benchmarks

- NCC Vol1 2019
- Green Star Design & As Built V1.3
- STORM (≥100%)
- Best Practice Standards
- Australian Standards
- Walk Score

The proposed development will meet and / or exceeds the objectives if it is constructed in accordance with the contents of the report, supporting documentation and applicable drawings. This report is to be read in conjunction with relevant reports written by third parties. It is the responsibility of the development manager to ensure the implementation, monitoring, maintenance, and review of all initiatives outlined in this report are upheld.

DISCLAIMER

5.0 APPENDIX A VOC LIMITS

Compliance with Low VOC products is met the product meets the requirements of Table 3 or is recognised under a Product Certification Scheme - http://new.gbca.org.au/product-certification-schemes/

Table 1 - Max TVOC Limits for Paints, Adhesive and Sealants

Product Category	*Max TVOC content in grams per litre of ready to use product*
General purpose adhesives and sealants	50
Interior wall and ceiling paint, all sheen levels	16
Interior wall and ceiling paint, all sheen levels	75
Primers, sealers and prep coats	65
One and two pack performance coatings for floors	140
Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

Compliance with Carpets is met by demonstrating the carpet meets the requirements of Table 4 or is recognised under a Product Certification Scheme - http://new.gbca.org.au/product-certification-schemes/

Table 2 - Carpet Test Standards and TVOC Emissions Limit

Compliance Option	*Test Protocol*	*Limit*
ASTM D5116	ASTM D5116 - Total VOC limit*	0.5mg/m2 per Hour
	ASTM D5116 - 4-PC (4-Phenylcyclohexene)*	0.05mg/m2 per Hour
ISO 16000 / EN 13419	ISO 16000 / EN 13419 - TVOC at three days	0.5 mg/m2 per hour
ISO 10580 / ISO/TC 219 (Document N238)	ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours	0.5 mg/m2 per hour

* Both limits should be met when testing against ASTM D5116

6.0 APPENDIX B – BESS REPORT

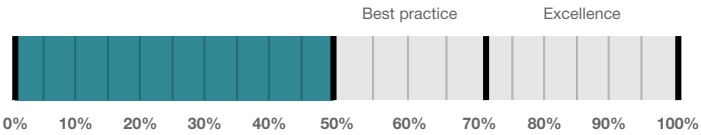
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 113 Warrigal Rd Hughesdale VIC 3166. 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 Monash City Council.

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

Your BESS Score

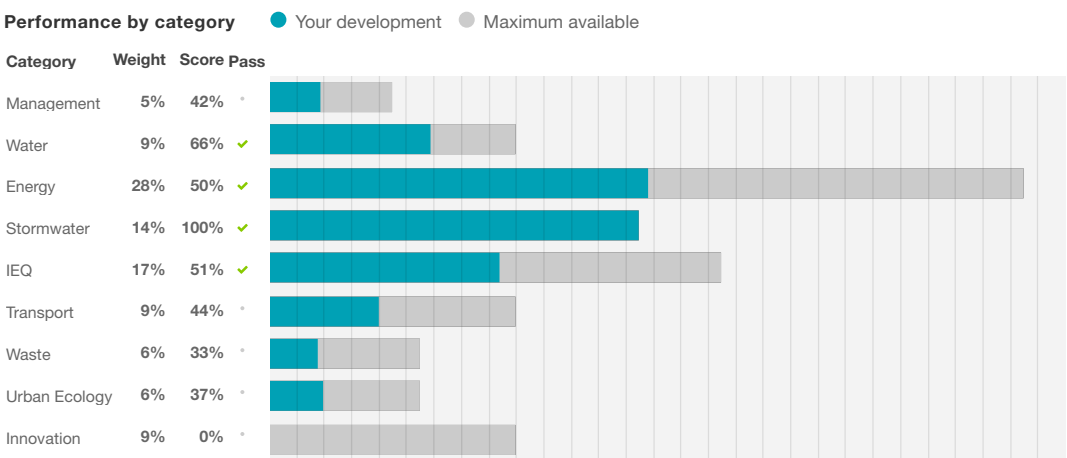


51%

Project details

Address	113 Warrigal Rd Hughesdale VIC 3166
Project no	04DA5235-R2
BESS Version	BESS-6
Site type	Non-residential development
Account	info@livingbuildingsolutions.com.au
Application no.	
Site area	12,848 m²
Building floor area	1,185.0 m²
Date	29 July 2021
Software version	1.7.0-B.365

Performance by category



Buildings

Name	Height	Footprint	% of total footprint
New Building Area	3	1,185 m^2	100%

Dwellings & Non Res Spaces

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Public building				
Stage 3A	1	1,185 m^2	New Building Area	100%
Total	**1**	**1,185 m^2**	**100%**	

Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Management 3.3	Common area submeters annotated		-
Water 3.1	Water efficient garden annotated		-
Energy 4.2	Floor plans showing location of photovoltaic panels as described.		-
Stormwater 1.1	Location of any stormwater management systems used in STORM or MUSIC modelling (e.g. Rainwater tanks, raingarden, buffer strips)		-
Transport 1.4	All nominated non-residential bicycle parking spaces		-
Transport 1.5	All nominated non-residential visitor bicycle parking spaces		-
Transport 1.6	Showers, change rooms and lockers as nominated		-
Waste 2.2	Location of recycling facilities		-
Urban Ecology 1.1	Size and location of communal spaces		-
Urban Ecology 2.1	Vegetated areas		-

Supporting evidence

Credit	Requirement	Response	Status
Management 2.3	Preliminary modelling report		-
Management 2.3a	Section J glazing assessment		-
Management 2.3b	Preliminary modelling report		-
Energy 1.1	Energy Report showing calculations of reference case and proposed buildings		-
Energy 3.7	Provide a written description of the average lighting power density to be installed in the development and specify the 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 1.4	A short report detailing assumptions used and results achieved.		-

Credit summary

Management Overall contribution 4.5%

	42%	
1.1 Pre-Application Meeting	0%	
2.3 Thermal Performance Modelling - Non-Residential	100%	
3.2 Metering	N/A	Scoped Out
		One tenancy
3.3 Metering	100%	
4.1 Building Users Guide	0%	

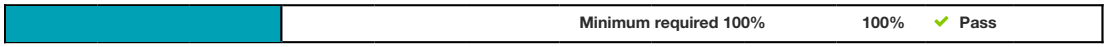
Water Overall contribution 9.0%

	Minimum required 50%	**66%**	**Pass**
1.1 Potable water use reduction	60%		
3.1 Water Efficient Landscaping	100%		
4.1 Building Systems Water Use Reduction	N/A	Scoped Out	
	HVAC uses air cooled condensers & the building does not require sprinklers		

Energy Overall contribution 27.5%

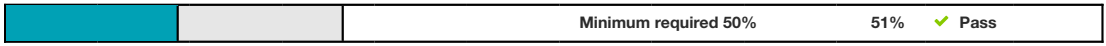
	Minimum required 50%	**50%**	**Pass**
1.1 Thermal Performance Rating - Non-Residential	12%		
2.1 Greenhouse Gas Emissions	100%		
2.2 Peak Demand	0%		
2.3 Electricity Consumption	100%		
2.4 Gas Consumption	N/A	Scoped Out	
			No gas connection in use
3.1 Carpark Ventilation	N/A	Scoped Out	
			No enclosed carpark
3.2 Hot Water	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	N/A	Disabled	
			No other (non-solar PV) renewable energy is in use.

Stormwater Overall contribution 13.5%



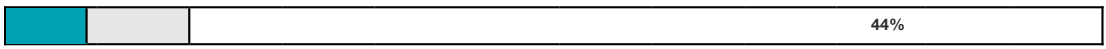
1.1 Stormwater Treatment	100%	

IEQ Overall contribution 16.5%



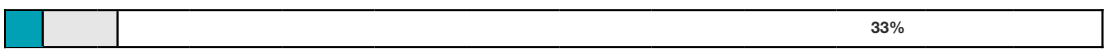
1.4 Daylight Access - Non-Residential	39%	✔ Achieved
2.3 Ventilation - Non-Residential	50%	✔ Achieved
3.4 Thermal comfort - Shading - Non-residential	100%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential	0%	
4.1 Air Quality - Non-Residential	34%	

Transport Overall contribution 9.0%



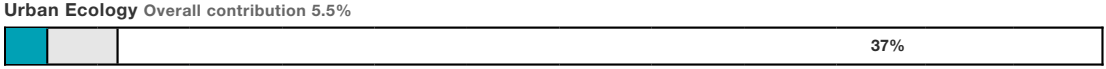
1.4 Bicycle Parking - Non-Residential	100%	
1.5 Bicycle Parking - Non-Residential Visitor	100%	
1.6 End of Trip Facilities - Non-Residential	100%	
2.1 Electric Vehicle Infrastructure	0%	
2.2 Car Share Scheme	0%	
2.3 Motorbikes / Mopeds	0%	

Waste Overall contribution 5.5%



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

Urban Ecology Overall contribution 5.5%



1.1 Communal Spaces	100%	
2.1 Vegetation	50%	
2.2 Green Roofs	0%	
2.3 Green Walls and Facades	0%	
3.2 Food Production - Non-Residential	0%	

Innovation Overall contribution 9.0%

	0%

1.1 Innovation		N/A	⊘ Disabled
			Please enter at least one innovation.

Credit breakdown

Management Overall contribution 2%

1.1 Pre-Application Meeting		0%
Score Contribution	This credit contributes 42.9% towards the category score.	
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?	
Question	Criteria Achieved ?	
Project	No	
2.3 Thermal Performance Modelling - Non-Residential		100%
Score Contribution	This credit contributes 28.6% towards the category score.	
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2019 Section J1.5?	
Question	Criteria Achieved ?	
Public building	Yes	
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2019 Section J (Energy Efficiency), NABERS or Green Star?	
Question	Criteria Achieved ?	
Public building	Yes	
3.2 Metering		N/A ⌖ Scoped Out
This credit was scoped out	One tenancy	
3.3 Metering		100%
Score Contribution	This credit contributes 14.3% towards the category score.	
Criteria	Have all major common area services been separately submetered?	
Question	Criteria Achieved ?	
Public building	Yes	
4.1 Building Users Guide		0%
Score Contribution	This credit contributes 14.3% towards the category score.	
Criteria	Will a building users guide be produced and issued to occupants?	
Question	Criteria Achieved ?	
Project	No	

Water

Overall contribution 6% Minimum required 50%

Water Approach	
What approach do you want to use for Water?:	Use the built in calculation tools

Project Water Profile Question	
Do you have a reticulated third pipe or an on-site water recycling system?:	No
Are you installing a swimming pool?:	No
Are you installing a rainwater tank?:	Yes

Water fixtures, fittings and connections	
Building:	New Building Area
Showerhead:	Scope out
Bath:	Scope out
Kitchen Taps:	>= 5 Star WELS rating
Bathroom Taps:	>= 5 Star WELS rating
Dishwashers:	>= 4 Star WELS rating
WC:	>= 4 Star WELS rating
Urinals:	Scope out
Washing Machine Water Efficiency:	Scope out
Which non-potable water source is the dwelling/space connected to?:	Tank 1
Non-potable water source connected to Toilets:	Yes
Non-potable water source connected to Laundry (washing machine):	No
Non-potable water source connected to Hot Water System:	No

Rainwater Tank	
What is the total roof area connected to the rainwater tank?: Tank 1	410 m^2
Tank Size: Tank 1	15,000 Litres
Irrigation area connected to tank: Tank 1	0.0 m^2
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 83.3% towards the category score.	
Criteria	What is the reduction in total potable water use due to efficient fixtures, appliances, rainwater use and recycled water use? To achieve points in this credit there must be >25% potable water reduction.	
Output	Reference	
Project	2160 kL	
Output	Proposed (excluding rainwater and recycled water use)	
Project	1597 kL	
Output	Proposed (including rainwater and recycled water use)	
Project	1279 kL	
Output	% Reduction in Potable Water Consumption	
Project	40 %	
Output	% of connected demand met by rainwater	
Project	44 %	
Output	How often does the tank overflow?	
Project	Never / Rarely	
Output	Opportunity for additional rainwater connection	
Project	233 kL	

3.1 Water Efficient Landscaping		100%
Score Contribution	This credit contributes 16.7% towards the category score.	
Criteria	Will water efficient landscaping be installed?	
Question	Criteria Achieved ?	
Project	Yes	

4.1 Building Systems Water Use Reduction		N/A	Scoped Out
This credit was scoped out	HVAC uses air cooled condensers & the building does not require sprinklers		

Energy Overall contribution 14% Minimum required 50%

Use the BESS Deem to Satisfy (DtS) method for Energy?:	No
Non-Residential Building Energy Profile	
Heating, Cooling & Comfort Ventilation - Electricity - reference fabric and reference services:	18,101 kWh
Heating, Cooling & Comfort Ventilation - Electricity - proposed fabric and reference services:	17,528 kWh
Heating, Cooling & Comfort Ventilation - Electricity - proposed fabric and proposed services:	662 kWh
Heating - Wood - reference fabric and reference services:	-
Heating - Wood - proposed fabric and reference services:	-
Heating - Wood - proposed fabric and proposed services:	-
Hot Water - Electricity - Baseline:	216 kWh
Hot Water - Electricity - Proposed:	216 kWh
Lighting - Baseline:	14,133 kWh
Lighting - Proposed:	14,133 kWh
Peak Thermal Cooling Load - Baseline:	-
Peak Thermal Cooling Load - Proposed:	-
Solar Photovoltaic system	
System Size (lesser of inverter and panel capacity): PV 1	10.0 kW peak
Orientation (which way is the system facing)?: PV 1	North
Inclination (angle from horizontal): PV 1	36.0 Angle (degrees)

1.1 Thermal Performance Rating - Non-Residential 12%

Score Contribution	This credit contributes 44.4% towards the category score.
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC 2019 Section J)?
Output	Total Improvement
Public building	3 %

2.1 Greenhouse Gas Emissions 100%

Score Contribution	This credit contributes 11.1% 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)
Public building	18,683 kg CO2
Output	Proposed Building with Proposed Services (Actual Building)
Public building	895 kg CO2
Output	% Reduction in GHG Emissions
Public building	95 %

2.2 Peak Demand 0%

Score Contribution	This credit contributes 5.6% towards the category score.
Criteria	What is the % reduction in instantaneous (peak-hour) demand against the benchmark?

2.3 Electricity Consumption		100%	
Score Contribution	This credit contributes 11.1% towards the category score.		
Criteria	What is the % reduction in annual electricity consumption against the benchmark?		
Output	Reference		
Public building	18,316 kWh		
Output	Proposed		
Public building	878 kWh		
Output	Improvement		
Public building	95 %		
2.4 Gas Consumption		N/A	Scoped Out
This credit was scoped out	No gas connection in use		
3.1 Carpark Ventilation		N/A	Scoped Out
This credit was scoped out	No enclosed carpark		
3.2 Hot Water		100%	
Score Contribution	This credit contributes 5.6% 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		
Public building	216 kWh		
Output	Proposed		
Public building	216 kWh		
Output	Improvement		
Public building	0 %		
3.7 Internal Lighting - Non-Residential		100%	
Score Contribution	This credit contributes 11.1% towards the category score.		
Criteria	Does the maximum illumination power density (W/m2) in at least 90% of the area of the relevant building class meet the requirements in Table J6.2a of the NCC 2019 Vol 1?		
Question	Criteria Achieved ?		
Public building	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 5.6% 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		
Public building	13,030 kWh		
Output	% of Building's Energy		
Public building	86 %		

4.4 Renewable Energy Systems - Other		N/A	⊘ 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	103
Output	Min STORM Score
Project	100

IEQ Overall contribution 8% Minimum required 50%

1.4 Daylight Access - Non-Residential		39%	✔ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.		
Criteria	What % of the regular use floor areas have at least 2% daylight factor?		
Question	Percentage Achieved?		
Public building	39 %		
2.3 Ventilation - Non-Residential		50%	✔ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.		
Criteria	What % of the regular use areas are effectively naturally ventilated?		
Question	Percentage Achieved?		
Public building	46 %		
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?		
Public building	100 %		
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?		
Question	Value		
Public building	-		
3.4 Thermal comfort - Shading - Non-residential		100%	
Score Contribution	This credit contributes 17.6% towards the category score.		
Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?		
Question	Percentage Achieved?		
Public building	100 %		
3.5 Thermal Comfort - Ceiling Fans - Non-Residential		0%	
Score Contribution	This credit contributes 5.9% towards the category score.		
Criteria	What percentage of regular use areas in tenancies have ceiling fans?		
Question	Percentage Achieved?		
Public building	0 %		
4.1 Air Quality - Non-Residential		34%	
Score Contribution	This credit contributes 5.9% towards the category score.		
Criteria	Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits?		
Question	Criteria Achieved ?		
Project	Yes		

Criteria	Does all carpet meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Project	No

Criteria	Does all engineered wood meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Project	No

Transport Overall contribution 4%

1.4 Bicycle Parking - Non-Residential	100%
Score Contribution	This credit contributes 22.2% 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 ?
Public building	Yes
Question	Bicycle Spaces Provided ?
Public building	2

1.5 Bicycle Parking - Non-Residential Visitor	100%
Score Contribution	This credit contributes 11.1% 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 ?
Public building	Yes
Question	Bicycle Spaces Provided ?
Public building	1

1.6 End of Trip Facilities - Non-Residential	100%
Score Contribution	This credit contributes 11.1% 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 ?
Public building	1
Question	Number of lockers provided ?
Public building	2
Output	Min Showers Required
Public building	1
Output	Min Lockers Required
Public building	2

2.1 Electric Vehicle Infrastructure	0%
Score Contribution	This credit contributes 22.2% towards the category score.
Criteria	Are facilities provided for the charging of electric vehicles?
Question	Criteria Achieved ?
Project	No

2.2 Car Share Scheme	0%
Score Contribution	This credit contributes 11.1% towards the category score.
Criteria	Has a formal car sharing scheme been integrated into the development?
Question	Criteria Achieved ?
Project	No

2.3 Motorbikes / Mopeds	0%
Score Contribution	This credit contributes 22.2% 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 2%

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

2.1 - Operational Waste - Food & Garden Waste	0%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	No

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

Urban Ecology Overall contribution 2%

1.1 Communal Spaces		100%
Score Contribution	This credit contributes 12.5% 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	
Public building	506 m²	
Output	Minimum Common Space Required	
Public building	84 m²	

2.1 Vegetation		50%
Score Contribution	This credit contributes 50.0% 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	17 %	

2.2 Green Roofs		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Does the development incorporate a green roof?	
Question	Criteria Achieved ?	
Project	No	

2.3 Green Walls and Facades		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Does the development incorporate a green wall or green façade?	
Question	Criteria Achieved ?	
Project	No	

3.2 Food Production - Non-Residential		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	What area of space per occupant is dedicated to food production?	
Question	Food Production Area	
Public building	0.0 m²	
Output	Min Food Production Area	
Public building	30 m²	

Innovation Overall contribution 0%

1.1 Innovation		N/A	⊘ Disabled
This credit is disabled	Please enter at least one innovation.		

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7.0 APPENDIX C – GREEN STAR DAYLIGHT HAND CALCULATIONS

Level 1 Daylight Calculation

Legend

GreenStar Nominated Regular Use Area

Daylight Compliant Area

BESS Daylight Access
Requirement: Minimum 33% of the regualr use area achieves the target daylight factor of 2%

Level 1
Total Regular Use Area: 189m²
Total Zone of Compliance = 82m²
Percentage of compliant area = 43.4%

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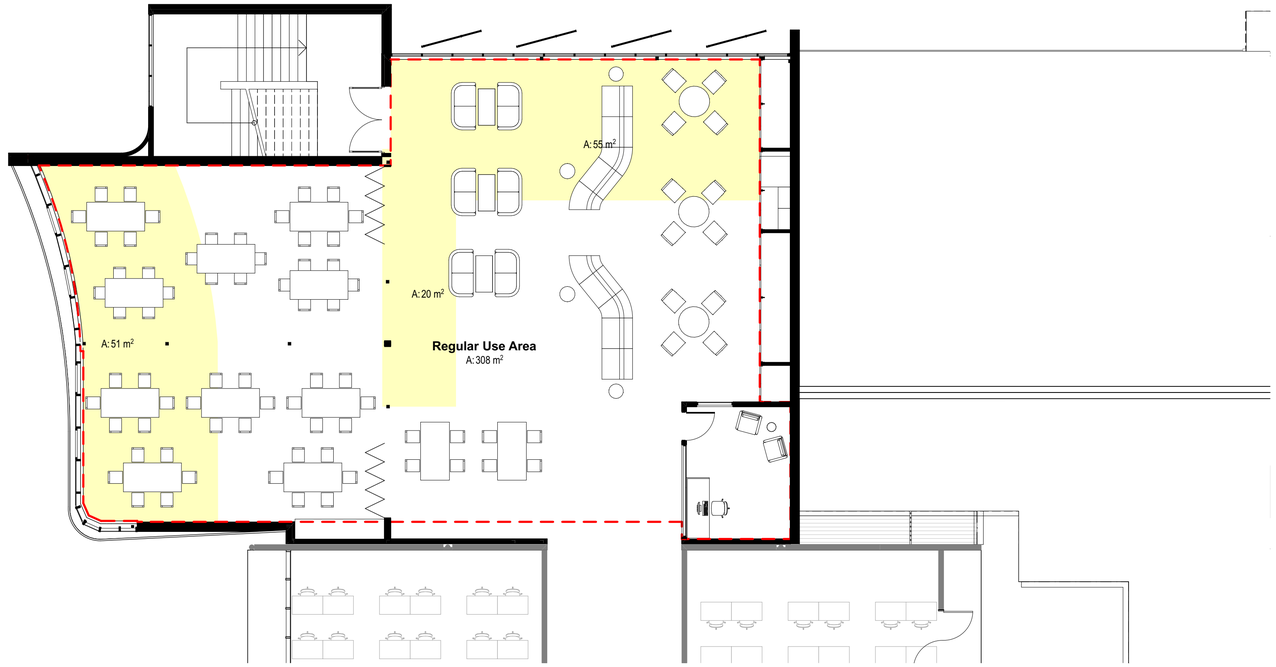
Stage 3A Latrobe Street Wing

RevID	Issue Name	Change Name	Date

L1 Daylight Calculation

2021
1:100 @ A1
2101
SD

Level 2 Daylight Calculation



Level 3 Daylight Calculation

Legend

GreenStar Nominated Regular Use Area

Daylight Compliant Area

BESS Daylight Access
Requirement: Minimum 33% of the regualr use area achieves the target daylight factor of 2%

Level 2
Total Regular Use Area: 292m²
Total Zone of Compliance = 104m²
Percentage of compliant area = 35.6%

Level 3
Total Regular Use Area: 308m²
Total Zone of Compliance = 126m²
Percentage of compliant area = 40.9%

Total percentage off compliant area = **39.5%**

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Stage 3A Latrobe Street Wing

RevID	Issue Name	Change Name	Date

L2 & L3 Daylight Calculation

2021
1:100 @ A1
2101
SD