

BESS Report

Built Environment Sustainability Scorecard

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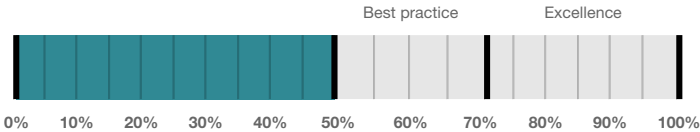
This BESS report outlines the sustainable design commitments of the proposed development at 63 Barber Dr Hoppers Crossing VIC 3029. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Wyndham City Council.

Note that where a Sustainability Management Plan is required, the BESS report is a supporting document to the SMDP. The SMDP is the primary document for the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

PLEASE NOTE: The plan/s that are being provided to you may not reflect what is ultimately approved by Council however they are the most recent version as at the date shown below:

Date Plans Provided: 30/09/2021

Your BESS Score



50%

Project details

Address	63 Barber Dr Hoppers Crossing VIC 3029
Project no	C7671390-R1
BESS Version	BESS-6
Site type	Multi dwelling (dual occupancy, townhouse, villa unit etc)
Account	ljoesika@bigpond.com
Application no.	
Site area	862 m²
Building floor area	479.0 m²
Date	24 June 2021
Software version	1.7.0-B.363



Performance by category

● Your development ● Maximum available

Category	Weight	Score Pass	Performance
Management	5%	40% *	40%
Water	9%	50% ✓	50%
Energy	28%	50% ✓	50%
Stormwater	14%	100% ✓	100%
IEQ	17%	60% ✓	60%
Transport	9%	0% *	0%
Waste	6%	50% *	50%
Urban Ecology	6%	75% *	75%
Innovation	9%	0% *	0%

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Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	% of total area
Townhouse			
Unit 3	1	178 m ²	37%
Unit 2	1	173 m ²	36%
Unit 1	1	128 m ²	26%
Total	3	479 m²	100%

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Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Water 3.1	Water efficient garden annotated		-
Energy 3.3	External lighting sensors annotated		-
Energy 3.4	Clothes line annotated (if proposed)		-
Stormwater 1.1	Location of any stormwater management systems used in STORM or MUSIC modelling (e.g. Rainwater tanks, raingarden, buffer strips)		-
IEQ 2.2	Dwellings meeting the requirements for having 'natural cross flow ventilation'		-
IEQ 3.2	Adjustable shading systems		-
IEQ 3.3	North-facing living areas		-
Waste 2.1	Location of food and garden waste facilities		-
Urban Ecology 2.1	Vegetated areas		-
Urban Ecology 2.4	Taps and floor waste on balconies / courtyards		-
Urban Ecology 3.1	Food production areas		-

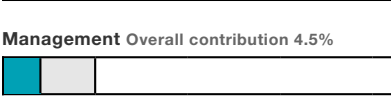
Supporting evidence

Credit	Requirement	Response	Status
Management 2.2	Preliminary NatHERS assessments		-
Energy 3.5	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.		-
Stormwater 1.1	STORM report or MUSIC model		-
IEQ 2.2	A list of dwellings with natural cross flow ventilation		-
IEQ 3.2	Reference to floor plans and elevations showing shading devices		-
IEQ 3.3	Reference to the floor plans showing living areas orientated to the north.		-

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Credit summary



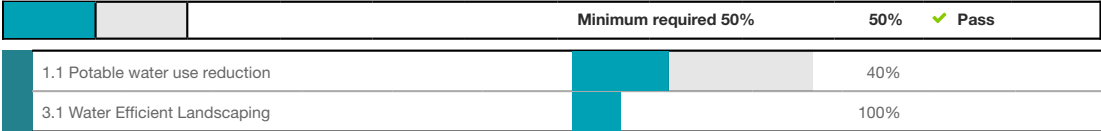
1.1 Pre-Application Meeting	0%
2.2 Thermal Performance Modelling - Multi-Dwelling Residential	50%
4.1 Building Users Guide	0%

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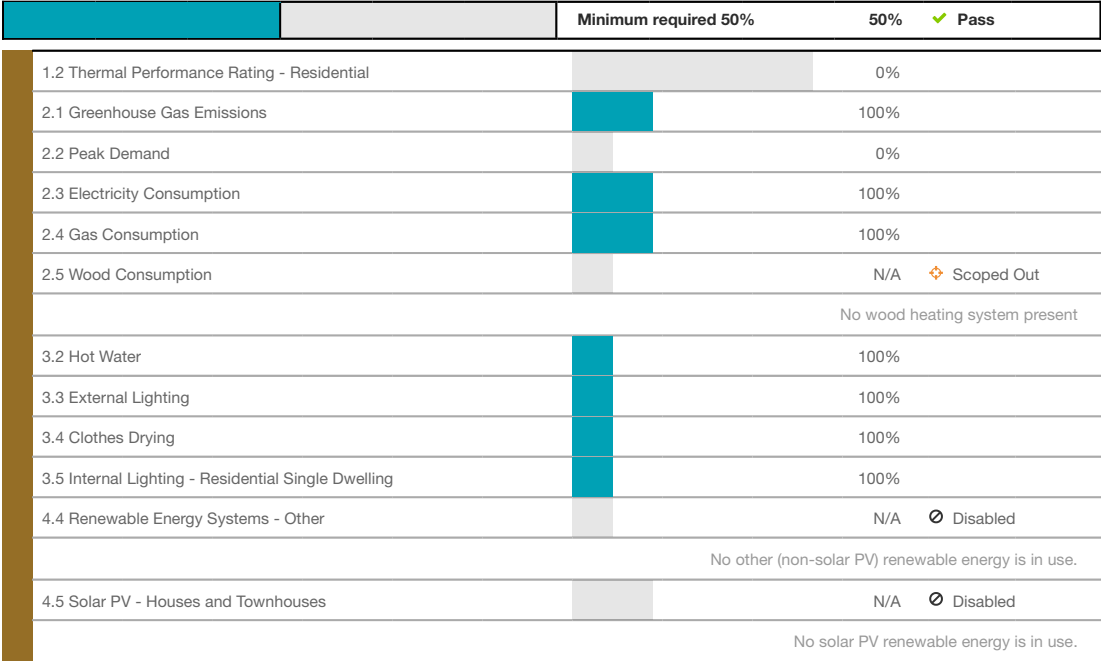
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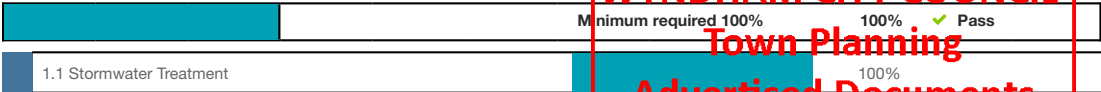
Water Overall contribution 9.0%



Energy Overall contribution 27.5%



Stormwater Overall contribution 13.5%





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IEQ Overall contribution 16.5%

			Minimum required 50%	60%	Pass
2.2 Cross Flow Ventilation					
3.1 Thermal comfort - Double Glazing					
3.2 Thermal Comfort - External Shading					
3.3 Thermal Comfort - Orientation					

Transport Overall contribution 9.0%

1.1 Bicycle Parking - Residential					0%
1.2 Bicycle Parking - Residential Visitor					N/A  Scoped Out
					Not enough dwellings.
2.1 Electric Vehicle Infrastructure					N/A  Scoped Out
					N/


Waste Overall contribution 5.5%

					50%
1.1 - Construction Waste - Building Re-Use					0%
2.1 - Operational Waste - Food & Garden Waste					100%

Urban Ecology Overall contribution 5.5%

					75%
2.1 Vegetation					100%
2.2 Green Roofs					0%
2.3 Green Walls and Facades					0%
2.4 Private Open Space - Balcony / Courtyard Ecology					100%
3.1 Food Production - Residential					100%

Innovation Overall contribution 9.0%

					0%
1.1 Innovation					N/A  Disabled
					Please enter at least one innovation.

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Credit breakdown**Management** Overall contribution 2%

1.1 Pre-Application Meeting		0%
Score Contribution	This credit contributes 0.0% towards the category score.	
Criteria	Has any ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?	
Question	Criteria Achieved ?	
Project	No	
2.2 Thermal Performance Modelling - Multi-Dwelling Residential		100%
Score Contribution	This credit contributes 40.0% towards the category score.	
Criteria	Have preliminary NatHERS ratings been undertaken for all thermally unique dwellings?	
Question	Criteria Achieved ?	
Townhouse	Yes	
4.1 Building Users Guide		N/A  Scoped Out
This credit was scoped out	Not required as building is standfor a small development	

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Water Overall contribution 4% Minimum required 50%

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Use the built in calculation tools

Water Approach

What approach do you want to use for Water?

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

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Water fixtures, fittings and connections

Date Plans Provided: 30/09/2021 (>= 6.0 but <= 7.5)

Showerhead

All

Scope out

Bath

All

>= 5 Star WELS rating

Kitchen Taps

All

>= 5 Star WELS rating

Bathroom Taps

All

Scope out

Dishwashers

All

>= 4 Star WELS rating

WC

All

Scope out

Urinals

All

Scope out

Washing Machine Water Efficiency

Which non-potable water source is the dwelling/space connected to?

Unit 1

Unit 1

Unit 2

Unit 2

Unit 3

Unit 3

Non-potable water source connected to Toilets

All

Yes

Non-potable water source connected to Laundry (washing machine)

All

No

Non-potable water source connected to Hot Water System

All

No

Rainwater Tanks

What is the total roof area connected to the rainwater tank?

Unit 1

86.0 m²

Unit 2

106 m²

Unit 3

111 m²

Tank Size

Unit 1

2,000 Litres

Unit 2

2,000 Litres

Unit 3

2,000 Litres

Irrigation area connected to tank

Unit 1

0.0 m²

Unit 2

0.0 m²

Unit 3

0.0 m²

Is connected irrigation area a water efficient garden?

Unit 1

-

Unit 2

-

Unit 3

-

Other external water demand connected to tank?

Unit 1

0.0 Litres/Day

Unit 2

0.0 Litres/Day

Unit 3

0.0 Litres/Day

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1.1 Potable water use reduction

Score Contribution	This credit contributes 40% 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	430 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	328 kL
Output	Proposed (including rainwater and recycled water use)
Project	272 kL
Output	% Reduction in Potable Water Consumption
Project	36 %
Output	% of connected demand met by rainwater
Project	100 %
Output	How often does the tank overflow?
Project	Very Often
Output	Opportunity for additional rainwater connection
Project	81 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

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Energy

Overall contribution 14% Minimum required 10%

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Dwellings Energy Approach		process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach copyright legislation.	
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)?		No	
Are you installing any other renewable energy system(s)?		No	
Gas supplied into building		Natural Gas	
Dwelling Energy Profiles			
Below the floor is		Date Plans Provided: 30/09/2021	
Above the ceiling is		All	Outside
Exposed sides		Unit 1 - Unit 3	3
		Unit 2	2
NatHERS Annual Energy Loads - Heat		Unit 1	107 MJ/sqm
		Unit 2	117 MJ/sqm
		Unit 3	120 MJ/sqm
NatHERS Annual Energy Loads - Cool		Unit 1	29.2 MJ/sqm
		Unit 2	13.4 MJ/sqm
		Unit 3	16.3 MJ/sqm
NatHERS star rating		Unit 1 - Unit 3	6.0
		Unit 2	6.2
Type of Heating System		All	B Gas central ducts
Heating System Efficiency		All	6 Star
Type of Cooling System		All	Refrigerative space
Cooling System Efficiency		All	4 Stars
Type of Hot Water System		All	A Electric Storage
Central Hot Water System		All	No
% Contribution from solar hot water system		All	90 %
Clothes Line		All	D Private outdoor clothesline
Clothes Dryer		All	A No clothes dryer
1.2 Thermal Performance Rating - Residential		0%	
Score Contribution		This credit contributes 30.0% towards the category score.	
Criteria		What is the average NatHERS rating?	
Output		Average NATHERS Rating (Weighted)	
Townhouse		6.1 Stars	

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2.1 Greenhouse Gas Emissions

Score Contribution	This credit contributes 100% 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)
Townhouse	22,007 kg CO ₂
Output	Proposed Building with Proposed Services (Actual Building)
Townhouse	10,595 kg CO ₂
Output	% Reduction in GHG Emissions
Townhouse	51 %

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2.2 Peak Demand

Score Contribution	This credit contributes 5.0% towards the category score.
Criteria	What is the % reduction in instantaneous (peak-hour) demand against the benchmark?
Output	Peak Thermal Cooling Load - Baseline
Townhouse	39.4 kW
Output	Peak Thermal Cooling Load - Proposed
Townhouse	39.2 kW
Output	Peak Thermal Cooling Load - % Reduction
Townhouse	0 %

2.3 Electricity Consumption

100%

Score Contribution	This credit contributes 10.0% towards the category score.
Criteria	What is the % reduction in annual electricity consumption against the benchmark?
Output	Reference
Townhouse	15,668 kWh
Output	Proposed
Townhouse	6,747 kWh
Output	Improvement
Townhouse	56 %

2.4 Gas Consumption

100%

Score Contribution	This credit contributes 10.0% towards the category score.
Criteria	What is the % reduction in annual gas consumption against the benchmark?
Output	Reference
Townhouse	117,215 MJ
Output	Proposed
Townhouse	72,239 MJ
Output	Improvement
Townhouse	38 %

2.5 Wood Consumption

This credit was scoped out	No wood heating system present
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N/A ✦ Scoped Out

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3.2 Hot Water

Score Contribution

This credit contributes 5.0% 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

Townhouse

9 312 kWh

Output

Proposed

Townhouse

3 309 kWh

Output

Improvement

Townhouse

64 %

3.3 External Lighting

100%

Score Contribution

This credit contributes 5.0% towards the category score.

Criteria

Is the external lighting controlled by a motion detector?

Question

Criteria Achieved ?

Townhouse

Yes

3.4 Clothes Drying

100%

Score Contribution

This credit contributes 5.0% 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

Townhouse

2,065 kWh

Output

Proposed

Townhouse

413 kWh

Output

Improvement

Townhouse

80 %

3.5 Internal Lighting - Residential Single Dwelling

100%

Score Contribution

This credit contributes 5.0% towards the category score.

Criteria

Does the development achieve a maximum illumination power density of 4W/sqm or less?

Question

Criteria Achieved?

Townhouse

Yes

4.4 Renewable Energy Systems - Other

N/A

⊗ Disabled

This credit is disabled

No other (non-solar PV) renewable energy is in use.

4.5 Solar PV - Houses and Townhouses

N/A

⊗ Disabled

This credit is disabled

No solar PV renewable energy

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Stormwater

Overall contribution 14%

Minimum required 100%

Which stormwater modelling are you using?	Medium to High STORM tool
1.1 Stormwater Treatment	40%
Score Contribution	This credit contributes 100.0% towards the category score.
Criteria	Has best practice stormwater treatment been implemented?
Question	Stormwater treatment
Project	100
Output	Min STORM Score
Project	100

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IEQ

Overall contribution 10%

Minimum required 50%

2.2 Cross Flow Ventilation	100%
Score Contribution	This credit contributes 20.0% towards the category score.
Criteria	Are all habitable rooms designed to achieve natural cross flow ventilation?
Question	Criteria Achieved ?
Townhouse	Yes
3.1 Thermal comfort - Double Glazing	0%
Score Contribution	This credit contributes 40.0% towards the category score.
Criteria	Is double glazing (or better) used to all habitable areas?
Question	Criteria Achieved ?
Townhouse	No
3.2 Thermal Comfort - External Shading	100%
Score Contribution	This credit contributes 20.0% towards the category score.
Criteria	Is appropriate external shading provided to east, west and north facing glazing?
Question	Criteria Achieved ?
Townhouse	Yes
3.3 Thermal Comfort - Orientation	100%
Score Contribution	This credit contributes 20.0% towards the category score.
Criteria	Are at least 50% of living areas orientated to the north?
Question	Criteria Achieved ?
Townhouse	Yes

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Transport Overall contribution 0%

1.1 Bicycle Parking - Residential	0%
Score Contribution	This credit contributes 100.0% towards the category score.
Criteria	How many secure bicycle spaces are there per dwelling for residents?
Question	Bicycle Parking Provision?
Townhouse	0
1.2 Bicycle Parking - Residential Visitor	Not enough dwellings.
This credit was scoped out	Not enough dwellings.
2.1 Electric Vehicle Infrastructure	N/A
This credit was scoped out	N/A

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Scoped Out

Waste Overall contribution 3%

1.1 - Construction Waste - Building Re-Use	0%
Score Contribution	This credit contributes 50.0% towards the category score.
Criteria	If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?
Question	Criteria Achieved ?
Project	No
2.1 - Operational Waste - Food & Garden Waste	100%
Score Contribution	This credit contributes 50.0% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	Yes

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Urban Ecology

Overall contribution 4%

2.1 Vegetation

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

Please provide a response.

Project

35 %

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

2.4 Private Open Space - Balcony / Courtyard Ecology

100%

Score Contribution

This credit contributes 12.5% towards the category score.

Criteria

Is there a tap and floor waste on every balcony / in every courtyard?

Question

Criteria Achieved ?

Townhouse

Yes

3.1 Food Production - Residential

100%

Score Contribution

This credit contributes 12.5% towards the category score.

Criteria

What area of space per resident is dedicated to food production?

Question

Food Production Area

Townhouse

3.0 m²

Output

Min Food Production Area

Townhouse

3 m²

Innovation

Overall contribution 0%

1.1 Innovation

N/A

⊗ Disabled

This credit is disabled

Please enter at least one innovation.

Disclaimer

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