

BESS Report



This BESS report outlines the sustainable design commitments of the proposed development at 291 Swan St Richmond VIC 3121. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Yarra City Council.

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

291 Swan St, Richmond 3121 Richmond

Site area: 1247 m² · Building Floor Area: 4532 m² ·

Date of Assessment: 25 Sep 2018 ·

Version: V3, 1.5.1-B157 ·

Applicant: kk@arkresources.com.au

Project number

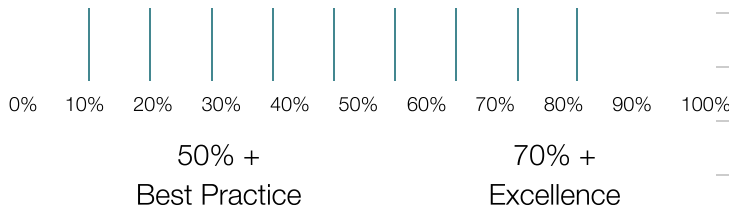
13138

Published

<http://bess.net.au/projects/13138>

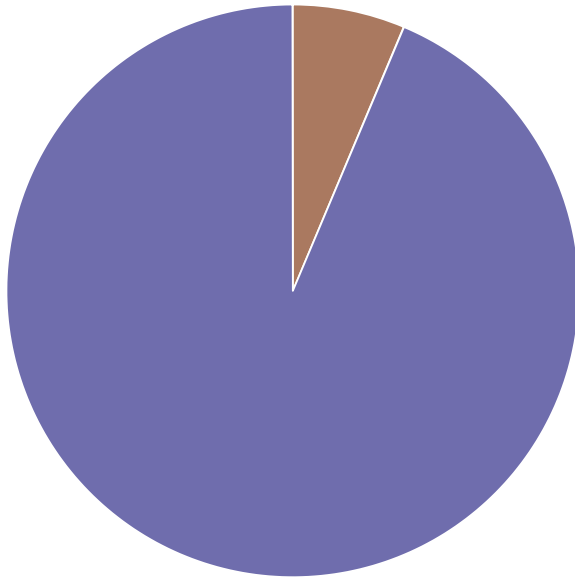
Your BESS score is

+ **58%**



% of Total	Category	Score	Pass
1 %	Management	33 %	
5 %	Water	62 %	✓
15 %	Energy	58 %	✓
13 %	Stormwater	100 %	✓
10 %	IEQ	64 %	✓
3 %	Transport	37 %	
3 %	Waste	66 %	
2 %	Urban Ecology	49 %	
1 %	Innovation	20 %	

Building Composition

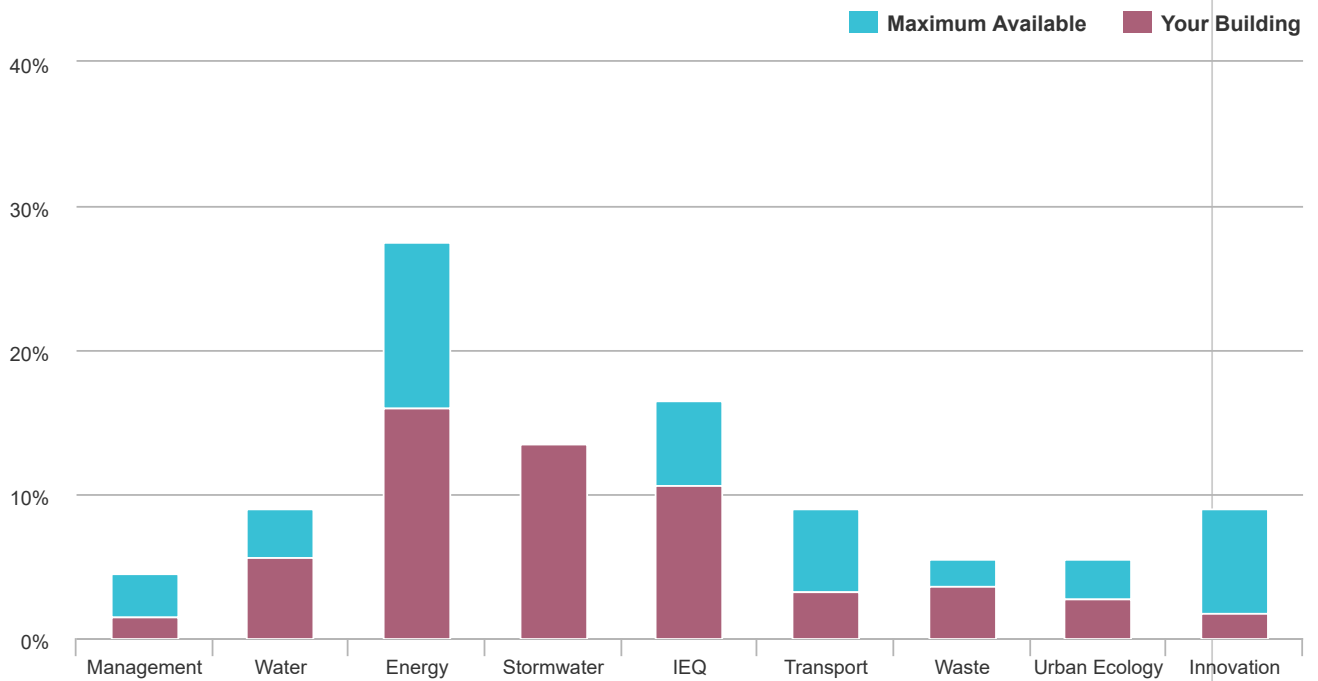


Shop Other building

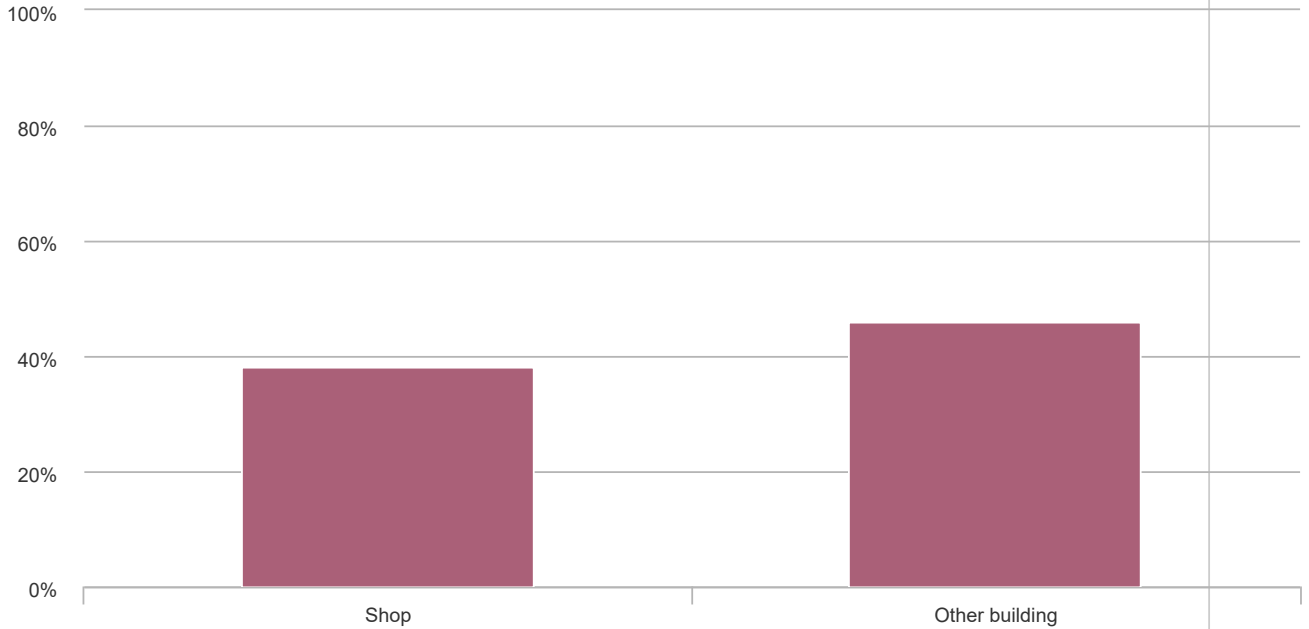
Non-Residential Spaces

Shop	288 m ²
Other building	4,244 m ²

How did this Development Perform in each Environmental Category?



How does each Dwelling or Non-Residential Space type perform?



Sustainable design commitments by category

The sustainable design commitments for this project are listed below. These are to be incorporated into the design documentation and subsequently implemented.

Management

33% - contributing 1% to overall score

Credit	Disabled	Scoped out	Score
Management 3.2 Metering			100 %
Management 3.3 Metering			100 %
Management 4.1 Building Users Guide			100 %

Management 3.2 Metering 100%

Score Contribution This credit contributes 11% towards this section's score.

Aim To provide building users with information that allows monitoring of energy and water consumption

Questions

Have utility meters been provided for all individual commercial tenants?

Shop	Other building
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Yes	Yes
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Management 3.3 Metering	100%
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Score Contribution	This credit contributes 11% towards this section's score.
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Aim	To provide building users with information that allows monitoring of energy and water consumption
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Questions

Have all major common area services been separately submetered?

Shop	Other building
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Yes	Yes
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Management 4.1 Building Users Guide	100%
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Score Contribution	This credit contributes 11% towards this section's score.
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Aim	To encourage and recognise initiatives that will help building users to use the building efficiently
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Questions

Will a building users guide be produced and issued to occupants?

Project wide

Yes

Water

62% - contributing 5% to overall score

Credit	Disabled	Scoped out	Score
Water 1.1 Potable Water Use Reduction (Interior Uses)			50 %
Water 2.1 Rainwater Collection & Reuse (Additional Uses)			100 %
Water 3.1 Water Efficient Landscaping			100 %

Water Approaches

What approach do you want to use Water?	Use the built in calculation tools
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Project Water Profile Questions

Are you installing a rainwater tank? Yes

Water fixtures, fittings and connections

	Shop	Other building
Showerhead	Scope out	Scope out
Bath	Scope out	Scope out
Kitchen Taps	> 4 Star WELS rating	> 4 Star WELS rating
Bathroom Taps	> 5 Star WELS rating	> 5 Star WELS rating
Dishwashers	> 4 Star WELS rating	> 4 Star WELS rating
WC	> 4 Star WELS rating	> 4 Star WELS rating
Urinals	> 5 Star WELS rating	> 5 Star WELS rating
Washing Machine Water Efficiency	Scope out	> 4 Star WELS rating
Rainwater connected to: Toilets	Yes	Yes

Rainwater Tanks

	RWT
What is the total roof area connected to the rainwater tank? <small>Square Metres</small>	655.0
Tank Size <small>Litres</small>	20000.0
Irrigation area connected to tank <small>Square Metres</small>	164.0
Is connected irrigation area a water efficient garden?	Yes

Water 1.1 Potable Water Use Reduction (Interior Uses) 50%

Score Contribution	This credit contributes 50% towards this section's score.
Aim	Water 1.1 Potable water use reduction (interior uses) What is the reduction in total water use due to efficient fixtures, appliances, and rainwater use? To achieve points in this credit there must be >25% potable water reduction. You are using the built in calculation tools. This credit is calculated from information you have entered above.
Criteria	Percentage reduction in potable water use

Questions

Percentage Achieved ? Percentage %

Project wide

%

Calculations

Annual Water Consumption (kL) (Reference)

Project wide

5017

Annual Water Consumption (kL) (Proposed)

Project wide

3555

% Reduction in Potable Water Consumption Percentage %

Project wide

29 %

Water 2.1 Rainwater Collection & Reuse (Additional Uses) 100%

Score Contribution	This credit contributes 25% towards this section's score.
Aim	What is the additional reduction in potable (mains) water use due to rainwater harvesting? Additional water uses for rainwater include non-potable demands such as irrigation, pools, commercial process uses and taps for washdown. Note: tank water will only be available for additional uses if it not required for internal uses. If the property uses an alternative water source, the alternative water source is deemed to meet 90% of additional non-potable water use requirements. You are using the built in calculation tools. This credit is calculated from information you have entered above in the rainwater tanks section.
Criteria	What is the additional reduction in potable (mains) water use due to using rainwater or an alternative water source?

Questions

Percentage Achieved ? Percentage %

Project wide

%

Calculations

Rainwater collection & reuse (additional uses) Percentage %

Project wide

100 %

Water 3.1 Water Efficient Landscaping 100%

Score Contribution	This credit contributes 12% towards this section's score.
Aim	Are water efficiency principles used for landscaped areas? This includes low water use plant selection (e.g. xeriscaping) and specifying water efficient irrigation (e.g. drip irrigation with timers and rain sensors). Note: food producing landscape areas and irrigation areas connected to rainwater or an alternative water source are excluded from this section.
Questions	
Will water efficient landscaping be installed?	
Project wide	
Yes	

Energy

58% - contributing 15% to overall score

Credit	Disabled	Scoped out	Score
Energy 1.1 Thermal Performance Rating - Non-Residential			12 %
Energy 2.1 Greenhouse Gas Emissions			100 %
Energy 2.3 Electricity Consumption			100 %
Energy 2.4 Gas Consumption			100 %
Energy 3.1 Carpark Ventilation			100 %
Energy 3.2 Hot Water			100 %
Energy 3.7 Internal Lighting - Non-Residential			100 %
Energy 4.1 Combined Heat and Power (cogeneration / trigeneration)			N/A
Energy 4.2 Renewable Energy Systems - Solar			93 %

Energy 1.1 Thermal Performance Rating - Non-Residential 12%

Score Contribution	This credit contributes 36% towards this section's score.
Aim	Reduce reliance on mechanical systems to achieve thermal comfort in summer and winter - improving comfort, reducing greenhouse gas emissions, energy consumption, and maintenance costs.
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC 2016 BCA Volume 1 Section J)

Questions

Criteria Achieved ?

Calculations

Total Improvement Percentage %

Shop	Other building
11 %	10 %

Energy 2.1 Greenhouse Gas Emissions 100%

Score Contribution This credit contributes 9% towards this section's score.

Aim Reduce the building's greenhouse gas emissions

Criteria Are greenhouse gas emissions >10% below the benchmark

Questions

Criteria Achieved ?

Calculations

Reference Building with Reference Services (BCA only) kg CO2

Shop	Other building
5975.7	10423.0

Proposed Building with Proposed Services (Actual Building) kg CO2

Shop	Other building
5318.1	9318.6

% Reduction in GHG Emissions Percentage %

Shop	Other building
11 %	10 %

Energy 2.3 Electricity Consumption 100%

Score Contribution This credit contributes 9% towards this section's score.

Aim Reduce consumption of electricity

Criteria Is the annual electricity consumption >10% below the benchmark

Questions

Criteria Achieved ?

Calculations

Reference kWh

Shop	Other building
5000.0	8500.0

Proposed kWh

Shop	Other building
4450.0	7600.0

Improvement Percentage %

Shop	Other building
11 %	10 %

Energy 2.4 Gas Consumption

100%

Score Contribution	This credit contributes 9% towards this section's score.
Aim	Reduce consumption of electricity
Criteria	Is the annual gas consumption >10% below the benchmark?

Questions

Criteria Achieved ?

Calculations

Reference MJ

Shop	Other building
500.0	6000.0

Proposed MJ

Shop	Other building
440.0	5350.0

Improvement Percentage %

Shop	Other building
12 %	10 %

Energy 3.1 Carpark Ventilation

100%

Score Contribution	This credit contributes 9% towards this section's score.
Notes	Outdoor carpark

Questions

If you have a basement carpark, is it either: (a) fully naturally ventilated (no mechanical ventilation system), or (b) use Carbon Monoxide monitoring to control the operation and speed of the ventilation fans

Project wide

Yes

Energy 3.2 Hot Water 100%

Score Contribution	This credit contributes 4% towards this section's score.
Criteria	Does the hot water system use >10% less energy (gas and electricity) than the reference case?

Questions

Criteria Achieved ?

Calculations

Reference MJ

Shop	Other building
138.9	1666.7

Proposed MJ

Shop	Other building
122.2	1486.1

Improvement Percentage %

Shop	Other building
12 %	10 %

Energy 3.7 Internal Lighting - Non-Residential 100%

Score Contribution	This credit contributes 9% towards this section's score.
Aim	Reduce energy consumption associated with internal lighting

Questions

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 2016 BCA Volume 1 Section J (Class 2 to 9)

Shop	Other building
Yes	Yes

Energy 4.1 Combined Heat and Power (cogeneration / trigeneration) N/A

This credit was scoped out: No cogeneration or trigeneration system in use.

This credit was disabled: No cogeneration or trigeneration system in use.

Aim	Reduce energy consumption
Criteria	Does the CHP system reduce the class of buildings GHG emissions by more than 25%?

Energy 4.2 Renewable Energy Systems - Solar 93%

Score Contribution	This credit contributes 4% towards this section's score.
Aim	To encourage the installation of on-site renewable energy generation
Criteria	Does the solar power system provide 5% of the developments estimated energy consumption?

Questions

Criteria Achieved ?

Stormwater 100% - contributing 13% to overall score

Credit	Disabled	Scoped out	Score
Stormwater 1.1 Stormwater Treatment			100 %

Which stormwater modelling are you using?	Melbourne Water STORM tool
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Stormwater 1.1 Stormwater Treatment 100%

Score Contribution	This credit contributes 100% towards this section's score.
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Aim	To achieve best practice stormwater quality objectives through reduction of pollutant load (suspended solids, nitrogen and phosphorus)
Criteria	Has best practice stormwater management been demonstrated?

Questions

STORM score achieved

Project wide

100

Flow (ML/year) % Reduction

Project wide

-

Total Suspended Solids (kg/year) % Reduction

Project wide

-

Total Phosphorus (kg/year) % Reduction

Project wide

-

Total Nitrogen (kg/year) % Reduction

Project wide

-

Calculations

Min STORM Score

Project wide

100

IEQ

64% - contributing 10% to overall score

Credit	Disabled	Scoped out	Score
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IEQ 1.4 Daylight Access - Non-Residential			64 %
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IEQ 1.4 Daylight Access - Non-Residential			64%
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Score Contribution	This credit contributes 100% towards this section's score.
Aim	To provide a high level of amenity and energy efficiency through design for natural light.
Criteria	What % of the nominated floor area has at least 2% daylight factor?
Questions	
% Achieved ?	
Shop	Other building
40 %	60 %

Transport

37% - contributing 3% to overall score

Credit	Disabled	Scoped out	Score
Transport 1.4 Bicycle Parking - Non-Residential			100 %
Transport 1.5 Bicycle Parking - Non-Residential Visitor			100 %

Transport 1.4 Bicycle Parking - Non-Residential 100%

Score Contribution	This credit contributes 25% towards this section's score.
Aim	To encourage and recognise initiatives that facilitate cycling

Questions

Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50%?

Shop	Other building
Yes	Yes

Transport 1.5 Bicycle Parking - Non-Residential Visitor 100%

Score Contribution	This credit contributes 12% towards this section's score.
Aim	To encourage and recognise initiatives that facilitate cycling

Questions

Have the planning scheme requirements for visitor bicycle parking been exceeded by at least 50%?

Shop	Other building
Yes	Yes

Waste 66% - contributing 3% to overall score

Credit	Disabled	Scoped out	Score
Waste 1.1 - Construction Waste - Building Re-Use			100 %
Waste 2.2 - Operational Waste - Convenience of Recycling			100 %

Waste 1.1 - Construction Waste - Building Re-Use 100%

Score Contribution	This credit contributes 33% towards this section's score.
Aim	To recognise developments that re-use materials on-site

Questions

If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?

Project wide
Yes

Waste 2.2 - Operational Waste - Convenience of Recycling 100%

Score Contribution	This credit contributes 33% towards this section's score.
Aim	To minimise recyclable material going to landfill

Questions

Are the recycling facilities at least as convenient for occupants as facilities for general waste?

Project wide
Yes

Urban Ecology 49% - contributing 2% to overall score

Credit	Disabled	Scoped out	Score
Urban Ecology 1.1 Communal Spaces			93 %

Urban Ecology 2.1 Vegetation	50 %
Urban Ecology 2.3 Green Walls and Facades	100 %

Urban Ecology 1.1 Communal Spaces 93%

Score Contribution	This credit contributes 12% towards this section's score.
Aim	To encourage and recognise initiatives that facilitate interaction between building occupants
Criteria	Is there at least the following amount of common space measured in square meters : * 1m ² for each of the first 50 occupants * Additional 0.5m ² for each occupant between 51 and 250 * Additional 0.25m ² for each occupant above 251

Questions

Common space provided Square Metres

Other building

144.0

Calculations

Minimum Common Space Required Square Metres

Shop	Other building
28	131

Urban Ecology 2.1 Vegetation 50%

Score Contribution	This credit contributes 50% towards this section's score.
Aim	To encourage and recognise the use of vegetation and landscaping within and around developments
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area.

Questions

Percentage Achieved ? Percentage %

Project wide

18 %

Urban Ecology 2.3 Green Walls and Facades 100%

Score Contribution	This credit contributes 12% towards this section's score.
Aim	To encourage the appropriate use of green roofs, walls and facades to mitigate the impact of the urban heat island effect.
Questions	
Does the development incorporate a green wall or facade?	
Project wide	
Yes	

Innovation

20% - contributing 1% to overall score

Credit	Disabled	Scoped out	Score
Innovation 1.1 Innovation			20 %

Innovations

	Innovation #1	Innovation #2
Description	<ul style="list-style-type: none"> Embodied ecological impacts of PV array and support racking will be reduced by 20% through use of 300Wp 60-cell modules with efficiency 20% or greater than standard PV modules. 	Visually differentiated electrical 'shutdown' master switches installed in dwellings to facilitate turning off lights and air-conditioning (soft shutdown) upon departure.
Points Targeted	1	1

Innovation 1.1 Innovation	20%
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Score Contribution	This credit contributes 100% towards this section's score.
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Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?
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Questions	
Criteria Achieved ?	
Project wide	
-	

Items to be marked on floorplans

0 / 13 floorplans & elevation notes complete.

Management 3.2: Individual utility meters annotated	Incomplete
Management 3.3: Common area submeters annotated	Incomplete
Energy 3.1: Carpark with natural ventilation or CO monitoring system	Incomplete
Energy 4.2: Floor plans showing location of photovoltaic panels as described.	Incomplete
Water 2.1: Location of rainwater tanks as described	Incomplete
Water 3.1: Water efficient garden annotated	Incomplete
Stormwater 1.1: Location of any stormwater management systems used in STORM or MUSIC modelling (e.g. Rainwater tanks, raingarden, buffer strips)	Incomplete
Transport 1.4: All nominated non-residential bicycle parking spaces	Incomplete
Transport 1.5: All nominated non-residential visitor bicycle parking spaces	Incomplete
Waste 2.2: Location of recycling facilities	Incomplete
Urban Ecology 1.1: Size and location of communal spaces	Incomplete
Urban Ecology 2.1: Vegetated areas	Incomplete
Urban Ecology 2.3: Green facade	Incomplete

Documents and evidence

0 / 7 supporting evidence documentation complete.

Energy 1.1: Energy Report showing calculations of reference case and proposed buildings	Incomplete
Energy 3.1: Provide a written explanation of either the fully natural carpark ventilation or carbon monoxide monitoring, describing how these systems will work, what systems are required for them to be fully integrated and who will be responsible for their implementation throughout the design, procurement and operational phases of the building life.	Incomplete
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.	Incomplete
Energy 4.2: Specifications of the solar photovoltaic system(s).	Incomplete
Stormwater 1.1: STORM report or MUSIC model	Incomplete
IEQ 1.4: A short report detailing assumptions used and results achieved.	Incomplete
Waste 1.1: Report detailing how the existing building is being reused on-site	Incomplete

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You should seek appropriate, independent, professional advice before acting on any of the areas covered by BESS.

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