Sustainable Design Assessment

488 Murray Road, Preston VIC

21/06/2024

Frater Consulting Services Pty Ltd

(03) 8691 6928
admin@fraterconsultingservices.com.au
fraterconsultingservices.com.au

a part of Sustainability Tech Partners Pty Ltd

Sustainable Design Assessment (SDA)

Proposed Mixed-Use Development

Table of Contents

DOCUMENT VERSION

Version	Date	Changelog	Author	Review
0	21/06/2024	Issued for Client Review	WZ	PS

T1, Level 17, 500 Collins St
Melbourne VIC 3000

03 8691 6928

admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

INITIATIVES TO BE MARKED ON DRAWINGS

Water & Stormwater Management

- ☐ Mark-up showing roof catchment area to be diverted to the Rainwater tank – If required, the use of charged pipe system will be explicitly acknowledged on the drawings and charged pipes will not be running underneath the building footprint.
- ☐ Location and size of each Rainwater tank proposed
- ☐ Note showing connection to the toilets.
- ☐ Note showing use of native or drought tolerant species for landscaped area. Watering will not be required after an initial period when plants are getting established.
- ☐ Note showing WELS rating for water fittings/fixtures (refer to report) – Fixtures (e.g. dishwasher) provided as part of base building work have to be chosen within one WELS star of best available at the time of purchase.

Energy Efficiency

- ☐ Note showing commitment to exceeding section J energy efficiency requirement of NCC 2022
- ☐ Note showing commitment to 4W/m^2 lighting density in the dwellings
- ☐ Note showing the maximum illumination power density (W/m^2) of the development meet the requirements in NCC 2022
- ☐ Lighting sensors for external lighting (motion detectors, timers etc.) including dimmable lights and daylight sensor in warehouse
- ☐ All Electric development
- ☐ Commitment to 7.0 Star energy rating for the dwelling (on planning and construction drawings)
- ☐

Indoor Environment Quality

- ☐ Note showing commitment to Outside Air Fan in Restaurant providing O/A rates 50% above minimum from AS1668 or O/A provision to ensure CO2 concentration remains below 800ppm
- ☐ Fixed shading devices to all north facing glazing of habitable rooms
- ☐ Ceiling fans in the restaurant
- ☐ Glazing to improve daylight performance by maximising VLT targeting 40%
- ☐ Note showing double glazing on all habitable rooms of the residential space (floor plans and elevations)

Transport

- ☐ 1 Bike space provided in the development

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

Waste

- Three bins system including rubbish, recycling and organic/garden waste as well as future glass waste provision.

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

INTRODUCTION

Frater Consulting Services have been engaged to undertake a Sustainable Design Assessment for the proposed mixed-use development located at 488 Murray Road, Preston. This has been prepared to address the Darebin City Council's sustainability requirements especially Clause 15.01-2L-01 *Environmentally Sustainable Development*

Within Clause 15.01-2L-01, Darebin City Council has identified the following key categories to be addressed

- Energy Performance;
- Water Resources;
- Stormwater Management;
- Indoor Environment Quality;
- Building Materials;
- Construction, Building & Waste Management;
- Transport; and
- Urban Ecology / Innovation.

The site has been assessed using the BESS tool. BESS was developed by association of councils led by Merri-bek City Council. This tool assesses the energy and water efficiency, thermal comfort and overall environmental sustainability performance of new buildings or alterations. It was created to demonstrate how new development can meet sustainability requirements as part of a planning permit application for the participating council.

Each target area within the BESS tool generally receives a score of between 1% and 100%. A minimum score of 50% is required for the energy, water, stormwater and IEQ areas. An overall score of 50% represents 'Best Practice' while a score over 70% represent 'Excellence'. The result of the BESS assessment is included as Appendix E.

The Stormwater Treatment Objective – Relative Measure (STORM) calculator, which addresses stormwater quality considerations, has been used for the development to ensure that stormwater management best practice requirements have been achieved. The result of the STORM assessment is included as Appendix A.

bess
Built Environment Sustainability Scorecard

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

SITE DESCRIPTION

The proposed site is located at 488 Murray Road, Preston. The site is currently occupied by a building which is proposed to be partly demolished prior to the construction of the proposed development. It is located within an established residential area approximately 10km north of the Melbourne CBD.

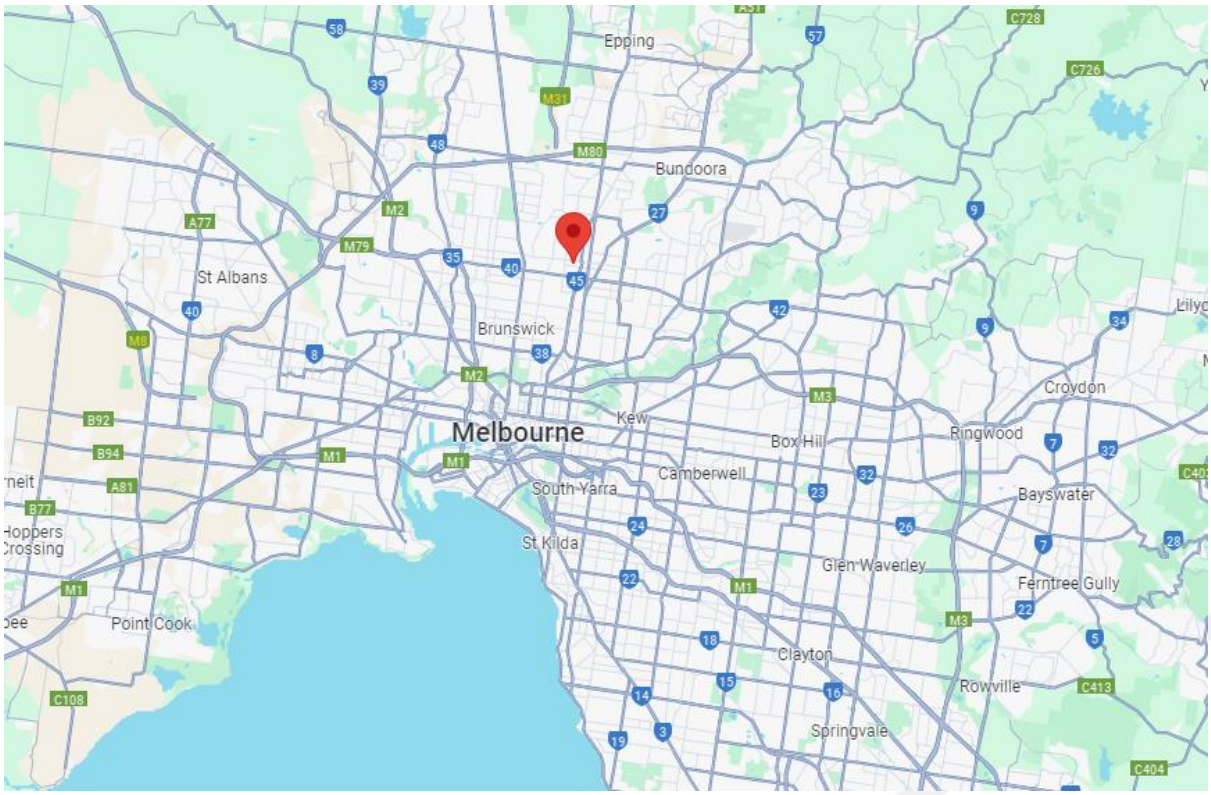

Figure 1: Location of the proposed development in Preston in relation to Melbourne CBD (Source: Google Maps)

PROPOSED DEVELOPMENT

The proposal consists of the development of the site into a double storey mixed-use building with a restaurant on the ground floor and a proposed 3-bedroom residential dwelling on the first floor. The area of the site is approximately 247.3m^2.

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

ENERGY EFFICIENCY

Energy and its key elements should be integrated into the design of the proposed development. These elements contribute to reducing greenhouse gas emissions by utilising energy efficient appliances, energy conservation measures and renewable energy.

Energy Efficiency

Commercial (restaurant)

Prior to the building construction stage of the project, a section J (NCC 2022) DTS assessment will occur with the following commitments:

- 10% improvement on floor and ceiling insulation level requirement from NCC 2022;
- Wall and glazing performance to be in line with DTS requirements
- Heating/cooling system to be chosen within one star of the best available product in the range at the time of purchase or COP/EER 85% or better than most efficient equivalent capacity unit available if no star rating is available; and
- Water heating system to be chosen within one star of the best available product in the range at the time of purchase or 85% or better than most efficient equivalent capacity unit available if no star rating is available.

Alternatively, prior to the building construction stage of the project, energy modelling will occur with the aim of exceeding requirement of NCC 2022, using an NCC JV3 modelling process. This will be achieved through the use of high-performance building fabric and glazing, low energy lighting and building services. **The reference building model will include the minimum improvement committed above for floor and ceiling.** This method will allow for flexibility in for glazing performance. Results in BESS using JV3 approach would yield a slightly lower score under BESS Energy 1.1 however our BESS assessment has been prepared to ensure that energy section and overall compliance is maintained.

Residential

Energy ratings will be completed at the building approval stage. A commitment is made that the development will meet the energy efficiency requirements of a minimum 7.0-Star energy rating. This will be achieved using appropriate insulation levels in all external walls, roofs and floors as well as the use of **double-glazing windows** throughout habitable rooms. For the purpose of the BESS assessment, 7.0-star result has been assumed.

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

Heating and Cooling Systems

To reduce the energy consumption heating and cooling will be provided by energy efficient air conditioners (chosen within one star of the best available product in the range at the time of purchase or COP/EER 85% or better than most efficient equivalent capacity unit available if no star rating is available).

COP/EER 85% or better than the most efficient equivalent capacity unit available if no star rating is available.

Please note that 3 Star energy rating has been entered in BESS as an average however actual star rating will depends on the product range.

Hot Water Heating

Hot water for the development will be provided with an efficient electric heat pump system.

All electric Development

No gas connection will be provided for the development. This will reduce reliance on fossil fuel and will be in line with local and state targets of decarbonisation.

Lighting

Commercial (restaurant)

The maximum illumination power density (W/m^2) of the development will meet NCC 2022 requirements in by the use of LED throughout the development.

Residential

Energy consumption from artificial lighting within the townhouses will be reduced by using LED lighting. A lighting level of $4W/m^2$ will not be exceeded in the townhouses. The use of light internal colours will improve daylight penetration thus reducing the need for artificial lighting.

External Lighting

External lighting for the dwelling common areas (driveway/pathway) will be LED and will include controls such as motion detectors or timers to minimise consumption during off-peak times.

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

WATER EFFICIENCY & STORMWATER MANAGEMENT

Water saving-use and reuse and its key elements should be integrated into the design of the proposed development. These principles contribute to reducing the water demand in addition to promoting water reuse. Stormwater management and its key elements should be integrated into the design of the proposed development. These principles contribute to ensuring natural systems are protected and enhanced whilst promoting on-site retention and aims to reduce runoff or peak flows.

Water Efficient Fittings

The development will include efficient fittings and fixtures to reduce the volume of mains water used in the development. The following WELS star ratings will be specified;

- Toilets – 4 Star;
- Taps (bathroom and kitchen) – 5 Star; and
- Showerhead if provided – 4 Star with aeration device (6.0-7.5L/min)
- Dishwasher – 5 Star.

Rainwater Collection & Use

Rainwater runoff from the entire roof area will be collected and stored in rainwater tanks[1] with a total effective capacity of 5,000L for the development.

If required, a charged pipe system or multiple tanks will be installed to collect water from the entire roof of each dwelling.

In the case of a charged pipe system, the charged pipes will not be running underneath the building footprint (slab) and the stakeholders (builder/developer/architect) will be required to explicitly acknowledge this solution and have the capacity to install it.

Rainwater collected will be used for toilet flushing throughout the development. These initiatives will reduce significantly the stormwater impacts of the development and help achieve compliance with the STORM calculator (See Appendix A).

Water Efficient Appliances

All appliances provided in the development as part of the base building work (e.g. dishwasher) will be chosen within one WELS star of the best available.

[1] Please note that any stormwater detention volume requirement for the site will be in addition to the proposed rainwater retention and that the proposed tank will not be directly topped up by mains water.

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

INDOOR ENVIRONMENT QUALITY

Indoor Environment Quality and its key elements should be integrated into the design of the proposed development. These elements play a significant role in the health, wellbeing and satisfaction of the development occupants. Facilitating a good (IEQ) design provides a naturally comfortable indoor environment and less dependence on building services such as, artificial lighting, mechanical ventilation and heating and cooling device.

Volatile Organic Compounds

All paints, adhesives and sealants and flooring will have low VOC content. Alternatively, products will be selected with no VOCs. Paints such as eColour, or equivalent should be considered. Please refer to Appendix D for VOC limits.

Formaldehyde Minimisation

All engineered wood products will have 'low' formaldehyde emissions, certified as E0 or better. Alternatively, products will be specified with no Formaldehyde. Products such as ecological panel – 100% post-consumer recycled wood (or similar) will be considered for use within the development. Please refer to Appendix D for formaldehyde limits.

Daylight Levels

Commercial (restaurant)

Daylight inputs through windows/openings for the Restaurant spaces will be enhanced with the use of light internal colours, allowing better internal reflection of daylight. Restaurant will have large glazing to allow for good daylight penetration.

The restaurant currently does not meet compliance standards outlined in the Green Star guidelines for daylighting. However, given the specific nature of the development, we propose that strict adherence to these guidelines may not be necessary. According to the SDAPP guidelines, achieving a 2% daylight factor across 30% of the floor area is considered best practice for nominated areas.

Considering the restaurant's function, which includes food service and potential storage of perishable goods sensitive to daylight exposure, we propose that achieving an 18% daylight score would adequately meet the needs of the commercial space. This approach balances the operational requirements of the restaurant while ensuring a reasonable level of daylighting that supports both customer experience and stock management.

Please refer to appendix C for daylight Hand Calculation showing compliance with best practice requirements.

Residential

Daylight penetration will be enhanced with the use of light internal colours to improve daylight reflection. All bedrooms and living rooms will be provided with windows to allow for natural sunlight and ventilation. There are no bedrooms that rely on borrowed daylight. Installation of mirrored wardrobe doors could improve even further the daylight spread within the bedrooms.

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

Mechanical Ventilation – Improved Outside Air Rates (Commercial)

Restaurant will be provided with O/A fans which will commit to provide 50% increase on O/A provision from AS1668.

Alternatively, O/A will be provided in the restaurant to ensure that CO2 concentration in the rooms remains below 800ppm.

Ventilation (Residential)

All kitchens will have a separate dedicated exhaust fan (range-hood) which will be directly exhausted out of the building.

All townhouses will have access to effective cross-flow ventilation. It will provide fresh air to the occupants and reduce the need for mechanical cooling. Window locks and door catches will be included to encourage and improve natural ventilation in the dwellings.

Double Glazing

Residential only -

Glazing will be chosen in accordance with the energy rating requirements at the building approval stage. However, as a minimum, double glazing will be provided to all living areas and bedrooms. This will provide better thermal performance and reduce condensation which helps prevent the formation of mould within the dwellings.

Task Lighting

Residential only -

A higher illuminance level (300Lux) will be provided for all task areas (e.g. kitchen bench, bathroom basin) to ensure appropriate light is provided to do any tasks in these areas.

Shading

Fixed shading will be provided on all north facing glazing of habitable rooms. This will help to reduce glare and control solar gains, improving the thermal comfort of the townhouses.

Acoustic Insulation

Each unit will be designed to meet the NCC requirement for acoustic insulation to minimise noise levels and noise transfer within and between buildings.

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

CONSTRUCTION, BUILDING & WASTE MANAGEMENT

Building Management and its key elements will be integrated into the design of the proposed development. These principles contribute to ensuring efficient and effective on-going building performance. Waste management and its key elements will be integrated into the design of the proposed development. These principles contribute to ensuring minimal waste is transported to landfill by means of disposal, recycling and on-site waste storage and/or collection methods.

Metering and Monitoring

Each tenancy will be separately metered for potable water and energy. Effective metering ensures that residents/tenants are responsible for their consumption and they can reduce their consumption.

Construction Waste Management

A waste management plan will be introduced to all on-site staff at a site orientation session to ensure that the waste generated on site is minimised and disposed of correctly. A minimum 80% of all construction and demolition waste generated on site will be reused or recycled.

Construction Environmental Management

The builder will identify environmental risks related to construction and include management strategies such as maintaining effective erosion and sediment control measures during construction and operation and ensure that appropriate staging of earthworks (e.g. avoid bare earthworks in high risk areas of the site during dominant rainfall period).

Operational Waste

A dedicated storage area will be provided in the development. The storage area will be sufficiently sized to accommodate the general and recycling waste. Recycling facilities will be as conveniently accessible as the general waste, FOGO and glass waste facilities.

Universal Access

The development will be designed for universal access in accordance with AS1428.2 to allow persons with limited mobility to enter and use the premises.

TRANSPORT

Bicycle Parking & End-Of-Trip Facilities

One bike space will be provided in the development

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

BUILDING MATERIALS

Materials selection should be integrated into the design of the proposed development. The criteria for appropriate materials used are based on economic and environmental cost.

Timber

All timber used in the development will be Forest Stewardship Council (FSC) or Program for the Endorsement of Forest Certification (PEFC) certified, or recycled / reused.

Flooring

Wherever possible, flooring will be selected from products/materials certified under any of the following:

- Carpet Institute of Australia Limited, Environmental Certification Scheme (ECS) v1.2;
- Global GreenTag - https://www.globalgreentag.com/; and/or
- Good Environmental Choice (GECA).

Joinery

Where possible, joinery will be manufactured from materials/products certified under any of the following:

- Global GreenTag - https://www.globalgreentag.com/; and/or
- Good Environmental Choice (GECA); and/or

Steel

Wherever possible, steel for the development will be sourced from a Responsible Steel Maker[2]. Reinforcing steel for the project will be manufactured using energy reducing processes commonly used by large manufacturers such as Bluescope or OneSteel.

[2] A Responsible Steel Maker must have facilities with a currently valid and certified ISO 14001 Environmental Management System (EMS) in place, and be a member of the World Steel Association's (WSA) Climate Action Program (CAP).

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

URBAN ECOLOGY

In highly urbanised environments, such as metropolitan Melbourne, it is important to recognise the importance of maintaining and increasing the health of our urban ecosystems to improve living conditions not only for the fauna but also ourselves.

Insulant ODP

All thermal insulation used in the development will not contain any ozone-depleting substances and will not use any in its manufacturing.

IMPLEMENTATION & MONITORING

The proposed development will meet the best practice requirement of the City of Darebin through the different initiatives describe in this report such as thermally efficient building envelope, efficient air conditioning and hot water system and sustainable materials. An appropriate implementation and monitoring of the initiatives outlined within this report will be required.

Implementation of the ESD initiatives outlined in this report requires the following processes:

- Full integration with architectural plans and specifications
- Full integration with building services design drawings and specifications
- Endorsement of the ESD Report with town planning drawings
- ESD initiatives to be included in plans and specifications for building approval

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

APPENDIX A – WSUD REPORT / STORM ASSESSMENT

New development must comply with the best practice performance targets for suspended solids, total phosphorous and total nitrogen, as set out in the Urban Stormwater Best Practice Environmental Management Guidelines, Victoria Stormwater Committee 1999. Currently, these water quality performance targets require:

- Suspended Solids - 80% retention of typical urban annual load.
- Total Nitrogen - 45% retention of typical urban annual load.
- Total Phosphorus - 45% retention of typical urban annual load.
- Litter - 70% reduction of typical urban annual load.

The STORM tool, an industry accepted tool, was used to assess the development and ensure that the best practice targets described above are met. A minimum compliance score of 100% is required to achieve for the development.

Site Delineation

For the purpose of the assessment, the development has been delineated into the following surface types:

- Site area of 247.3m^2;
- Roof area runoff of 175m^2 which will be diverted into rainwater tank(s);
- Remainder of impervious areas of 72.3m^2 comprised of other impervious areas around the site.

Figure 2: roof catchment to RWT (cyan).

Stormwater initiatives

Rainwater Tank
(Rainwater tank for toilet flushing)

The roof catchment area of 175m^2 (as described above) will be diverted to rainwater tank(s) with a total effective capacity of 5,000L for the development. The rainwater collected will be used for toilet flushing in the development.

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Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

If required, a charged pipe system or multiple tanks will be installed to collect water from part of the roof of each dwelling.

In the case of a charged pipe system, the charged pipes will not be running underneath the slab and the stakeholders (builder/developer/architect) will be required to explicitly acknowledge this solution and have the capacity to install it.

The remainder of impervious areas will directly be released at the legal point of discharge on site.

Permeable areas are excluded from the STORM assessment.

Stormwater Results

The initiatives and areas described above have been applied to the STORM calculator and the proposed development has achieved a score of 101%.

Melbourne Water **STORM Rating Report**

TransactionID:	0
Municipality:	DAREBIN
Rainfall Station:	DAREBIN
Address:	488 MURRAY ROAD
	PRESTON
	VIC 3072
Assessor:	FRATER CONSULTING SERVICES
Development Type:	Residential - Mixed Use
Allotment Site (m2):	247.30
STORM Rating %:	101

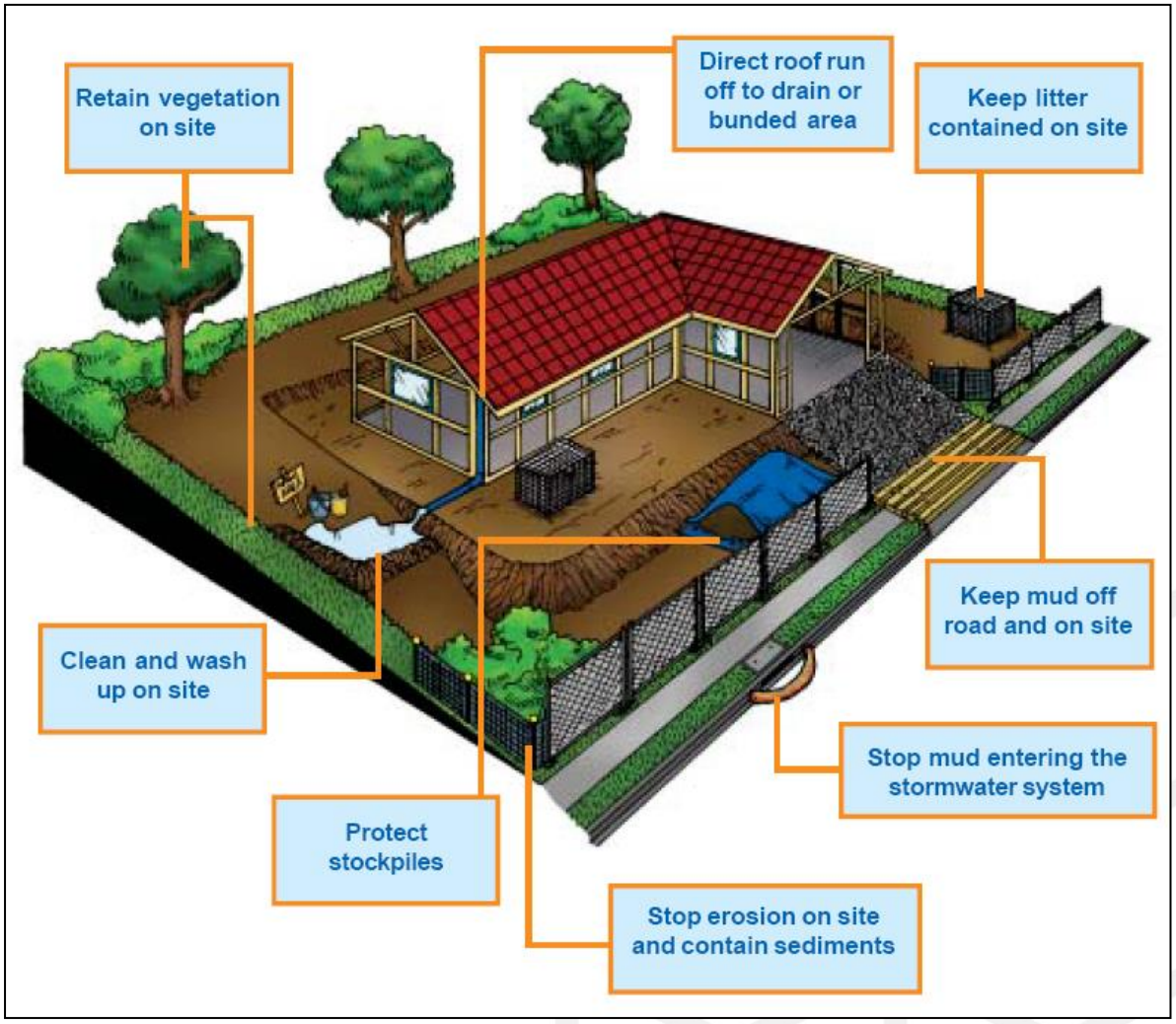
Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
ROOF TO RWT	175.00	Rainwater Tank	5,000.00	6	143.00	89.20
OTHER IMPERVIOUS AREA	72.30	None	0.00	0	0.00	0.00

It should be noted that the entire development is connected to the rainwater tank. The occupants have been assumed as per 3 for the residential (3-bedroom), and 3 for the commercial space.

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

Stormwater Management at Construction Site

To manage stormwater management in the construction stage, measures will be put in place to minimise the likelihood of contaminating stormwater. This will mean ensuring buffer strips are in place, sediment traps are installed, and the site will be kept clean from any loose rubbish. The builder will follow the process outlined in "Keeping Our Stormwater Clean – A Builder's Guide" by Melbourne Water.



Copies of "Keeping Our Stormwater Clean – A Builder's Guide" can be downloaded from the following website.

https://www.clearwatervic.com.au/resource-library/guidelines-and-strategy/keeping-our-stormwater-clean-a-builders-guide.php

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

APPENDIX B – WSUD MAINTENANCE & INSTALLATION

Installation

Rainwater Tank(s)

The rainwater tank(s) will be installed underground. Its manufacturer or material has not been nominated. It will be installed with a mesh insect cover over the inlet pipe to ensure the tank does not become a breeding ground for pests. Mesh needs to be installed over overflow pipes and if a manhole is present it needs to be properly sealed.

Please refer to the architectural drawings for the location of the rainwater tank.

Pumps

The pumps required either to divert the stormwater runoff to the rainwater tank or to distribute the collected water to the end uses (toilets) will be required to be installed as per the chosen manufacturer specifications.

Inspection Requirements

Rainwater Tanks

Inspections of roof areas and gutters leading to the tank should take place every 6 months. Rainwater in the tanks should be checked every 6 months for mosquito infestation.

The rainwater tank should be examined every 2 years for sludge build up.

Ensure the monitoring system (be it digital or a simple float system) is functioning properly by checking the water level in the rainwater tanks.

Pumps

The pumps required will be required to be routinely inspected by listening for the day-to day operation of the pumps. Unusual noise or no noise should be investigated. Inspection should occur as per the chosen manufacturer specifications.

Clean Out / Maintenance Procedure

Rainwater Tank, Roof and Gutters

Rainwater tanks will require the roof and gutters onsite to be maintained; gutters should be checked, maintained and cleaned every six months to avoid blockages from occurring. If a leaf blocking system is installed this can be completed annually.

Any trees onsite should be maintained every 6 months with branches overhanging the roof removed.

Water ponding in gutters should be avoided as this provides a breeding ground for mosquitos; tanks should also not become breeding grounds for mosquitoes. If mosquitoes are detected in the tank remedial steps need to occur to prevent breeding. If mosquitoes or other insects are found in rainwater tanks, the point of entry should be

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

located and repaired. As well as preventing further access, this will prevent the escape of emerging adults. Gutters should be inspected to ensure they do not contain ponded water and be cleaned if necessary.

Please refer to https://www.health.vic.gov.au/sites/default/files/2022-11/Keeping-your-rainwater-tank-safe-from-mosquitos.pdf for more information on mosquito control.

Rainwater tanks should be checked by regular maintenance person every 3-6 months to ensure that connection to the building is maintained and there are no blockages.

A simple way to ensure the tank is operating as intended would be through the installation of a smart monitoring device (e.g. OneBox®). These systems allow users to operate tanks remotely from internet or smartphone, monitor and control the tanks in real time, allow automatic release of stored water prior to storm events, alert users if there is any blockage and view tank history and usage patterns.

Alternatively, onsite tank gauges can help those familiar with the tank know if the tank is not working correctly.

Pumps

Maintenance should occur as per the chosen manufacturer specifications. All strainers and filters should be cleaned every 6 months. Good quality pump should provide trouble free service for up to 10 years.

Commissioning

Rainwater Tank

All rainwater tanks should be washed or flushed out prior to use. All inlets and outlets should be correctly sealed to prevent insects entering. Connection to all toilets in the development should be tested (dye test or equivalent).

Please note if new roof coating or paint is to be installed then the first few run-offs after installation need to be discarded.

Pumps

Commissioning should occur as per the chosen manufacturer specifications.

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

Summary

The following needs to occur onsite to ensure compliance with WSUD requirements and maintain operation of rainwater tank and connections onsite.

Task	When?	Requirement
Inspect Rainwater tanks	Every 6 months	• Check for any damage/compression • Mosquitoes infestation
	Every 2 years	• Sludge Build up – if sludge build up occurs a vacuum tank needs to be called out to site.
Inspect roofs & gutters	Every 6 months	• Clean out of leaves / debris. • Remove any overhanging branches onsite.

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

APPENDIX C – DAYLIGHT ACCESS – GREEN STAR CALCULATION

The Green Building Council of Australia (GBCA) has created a daylight access calculation method within the Green Star benchmarking tool. This tool is widely recognised by Councils and Industry.

The Green Star Daylight Hand Calculation method is used to determine if there are risks associated with the current design, particularly with respect to meeting the desired daylight factors referenced in the Sustainable Management Plan in the Planning Process (SDAPP) Indoor Environment Quality guidelines.

According to the SDAPP guidelines, best practice is achieved where 2% daylight factor is achieved across 30% of the floor area of the nominated area.

The calculation method is based on one simple formula to calculate a zone of compliance within a nominated room. The compliant zone is the area of the room achieving 2% daylight factor and can be calculated as follows:

$$\boldsymbol{Zone\ of\ Compliance} = \mathbf{2} \times \boldsymbol{h} \times \boldsymbol{w}$$

$\boldsymbol{w}$ is the width of the glazing serving the room

$\boldsymbol{h}$ is the height of the window head above the desktop/table level

Windows serving the nominated area are required to have a minimum 40% VLT to use the formula.

The percentage of compliant area within the nominated area can then be easily calculated with the following formula:

$$\boldsymbol{Percentage\ of\ compliant\ area} = \frac{\boldsymbol{Zone\ of\ Compliance}}{\boldsymbol{Nominated\ Area}} \times \mathbf{100}$$

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

Site Description

The nominated areas for the Hand Calculation are only comprised of the commercial restaurant space which will be regularly occupied.

The desktop/table level has been estimated to be 700mm.

See below for the mark-up of the compliant zone (orange) within each nominated area (light blue).

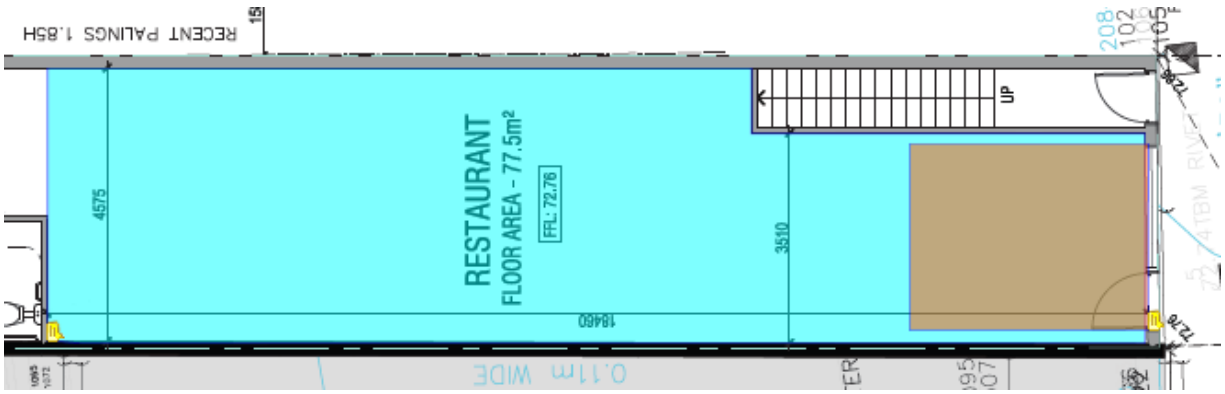


Figure 3: Compliance zone

	Nominated Areas (m^2)	Compliant Areas (m^2)	Compliant Areas (%)
RESTAURANT	70	13	18%
TOTAL	70	13	18%

The restaurant currently does not meet compliance standards outlined in the Green Star guidelines for daylighting. However, given the specific nature of the development, we propose that strict adherence to these guidelines may not be necessary. According to the SDAPP guidelines, achieving a 2% daylight factor across 30% of the floor area is considered best practice for nominated areas.

Considering the restaurant's function, which includes food service and potential storage of perishable goods sensitive to daylight exposure, we propose that achieving an 18% daylight score would adequately meet the needs of the commercial space. This approach balances the operational requirements of the restaurant while ensuring a reasonable level of daylighting that supports both customer experience and stock management.

33% has been input in BESS in order to comply with mandatory credit BESS IEQ 1.4

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

APPENDIX D – VOC & FORMALDEHYDE EMISSION LIMITS

The following table are an extract of the Green Star Design and as built submission guidelines:

Table 13.1.1: Maximum TVOC Limits for Paints, Adhesives and Sealants

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

The product complies with the Total VOC (TVOC) limits specified in the Table below.

Carpet Test Standards and TVOC Emissions Limits

Test protocol	Limit
ASTM D5116 - Total VOC limit	0.5mg/m^2 per hour
ASTM D5116 - 4-PC (4-Phenylcyclohexene)	0.05mg/m^2 per hour
ISO 16000 / EN 13419 - TVOC at three days	0.5 mg/m^2 per hour
ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours	0.5mg/m^2 per hour

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

Table 13.2: Formaldehyde Emission Limit Values for Engineered Wood Products

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

*mg/m²hr may also be represented as mg/m²/hr.

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

APPENDIX E – BESS ASSESSMENT

T1, Level 17, 500 Collins St
Melbourne VIC 3000
03 8691 6928
admin@fraterconsultingservices.com.au
www.fraterconsultingservices.com.au

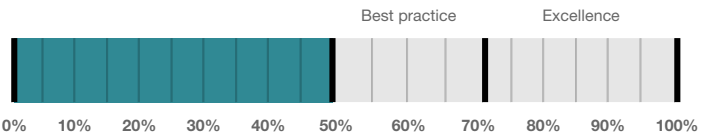
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 488 Murray Rd Preston Victoria 3072. 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 Darebin 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

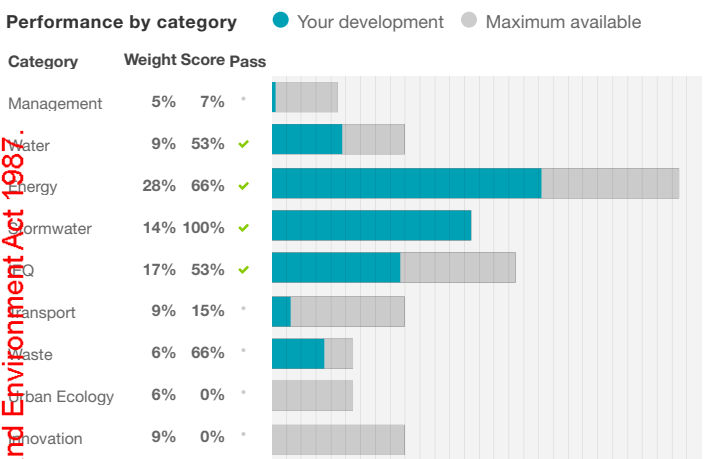


50%

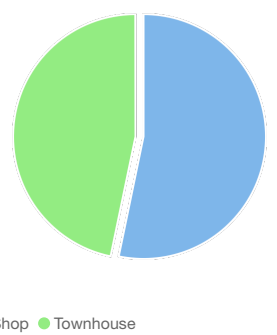
Project details

Address	488 Murray Rd Preston Victoria 3072
Project no	530FCA99-R1
BESS Version	BESS-8
Site type	Mixed use development
Account	wali@fraterconsultingservices.com.au
Application no.	
Site area	247.00 m²
Building floor area	347.50 m²
Date	21 June 2024
Software version	1.8.1-B.407

Performance by category



Building Type composition



Buildings

Name	Height	Footprint	% of total footprint
BUILDING	2	348 m²	100%

Dwellings & Non Res Spaces

Dwellings

Name	Quantity	Area	Building	% of total area
Townhouse				
FF DWELLING	1	162 m²	BUILDING	46%
Total	**1**	**162 m²**	**46%**	

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Shop				
GF RESTARAUNT	1	185 m²	BUILDING	53%
Total	**1**	**185 m²**	**53%**	

Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Management 3.2	Annotation: Individual utility meters to be provided to all individual commercial tenancies		-
Water 3.1	Annotation: Water efficient garden details		-
Energy 3.3	Annotation: External lighting controlled by motion sensors		-
Energy 3.4	Location of clothes line (if proposed)		-
Stormwater 1.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
IEQ 2.2	Annotation: Dwellings designed for 'natural cross flow ventilation' (If not all dwellings, include a list of compliant dwellings)		-
IEQ 3.1	Annotation: Glazing specification (U-value, SHGC)		-
IEQ 3.2	Shading devices		-
Transport 1.1	Location of residential bicycle parking spaces		-
Waste 2.1	Location of food and garden waste facilities		-
Waste 2.2	Location of recycling facilities		-

Supporting evidence

Credit	Requirement	Response	Status
Energy 1.1	Energy Report showing calculations of reference case and proposed buildings		-
Energy 3.5	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		-
Stormwater 1.1	STORM report or MUSIC model		-

Credit	Requirement	Response	Status
IEQ 1.4	A short report detailing assumptions used and results achieved.		-
IEQ 2.2	A list of dwellings with natural cross flow ventilation		-
IEQ 3.1	Reference to floor plans or energy modelling showing the glazing specification (U-value and Solar Heat Gain Coefficient, SHGC)		-
IEQ 3.2	Reference to floor plans and elevations showing shading devices		-

Credit summary

Management Overall contribution 4.5%

7%

1.1 Pre-Application Meeting	0%
2.2 Thermal Performance Modelling - Multi-Dwelling Residential	0%
2.3 Thermal Performance Modelling - Non-Residential	0%
3.2 Metering - Non-Residential	100%
3.3 Metering - Common Areas	0%
4.1 Building Users Guide	0%

Water Overall contribution 9.0%

Minimum required 50% **53%** ✔ **Pass**

1.1 Potable Water Use Reduction	43%	
3.1 Water Efficient Landscaping	100%	
4.1 Building Systems Water Use Reduction	N/A	Scoped Out
		N/A

Energy Overall contribution 27.5%

	Minimum required 50%	66%	Pass
1.1 Thermal Performance Rating - Non-Residential		37%	
1.2 Thermal Performance Rating - Residential		0%	✔ Achieved
2.1 Greenhouse Gas Emissions		100%	
2.2 Peak Demand		100%	
2.6 Electrification		100%	
2.7 Energy consumption		100%	
3.1 Carpark Ventilation		N/A	✣ Scoped Out
			OPEN
3.2 Hot Water		100%	
3.3 External Lighting		100%	
3.4 Clothes Drying		100%	
3.5 Internal Lighting - Houses and Townhouses		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		0%	⊘ Disabled
			No solar PV renewable energy is in use.
4.4 Renewable Energy Systems - Other		N/A	✣ Scoped Out
			No other (non-solar PV) renewable energy is in use.
4.5 Solar PV - Houses and Townhouses		0%	⊘ Disabled
			No solar PV renewable energy is in use.

Stormwater Overall contribution 13.5%

	Minimum required 100%	100%	Pass
1.1 Stormwater Treatment		100%	

IEQ Overall contribution 16.5%

	Minimum required 50%	53%	✔ Pass
1.4 Daylight Access - Non-Residential		33%	✔ Achieved
2.2 Cross Flow Ventilation		100%	
2.3 Ventilation - Non-Residential		33%	✔ Achieved
3.1 Thermal comfort - Double Glazing		100%	
3.2 Thermal Comfort - External Shading		100%	
3.3 Thermal Comfort - Orientation		0%	
3.4 Thermal comfort - Shading - Non-Residential		100%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential		0%	
4.1 Air Quality - Non-Residential		100%	

Transport Overall contribution 9.0%

	15%	
1.1 Bicycle Parking - Residential	100%	
1.2 Bicycle Parking - Residential Visitor	N/A	⊹ Scoped Out
		Not enough dwellings.
1.4 Bicycle Parking - Non-Residential	0%	
1.5 Bicycle Parking - Non-Residential Visitor	0%	
1.6 End of Trip Facilities - Non-Residential	0%	⊘ Disabled
	Credit 1.4 must be complete first.	
2.1 Electric Vehicle Infrastructure	0%	
2.3 Motorbikes / Mopeds	0%	

Waste Overall contribution 5.5%

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

Urban Ecology Overall contribution 5.5%

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

Innovation Overall contribution 9.0%

	0%
1.1 Innovation	0% ⊘ Disabled
A minimum project score of 50% is required before an Innovation Credit can be used.	

Credit breakdown

Management

Overall contribution 0%

1.1 Pre-Application Meeting		0%
Score Contribution	This credit contributes 42.5% towards the category score.	
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?	
Question	Criteria Achieved ?	
Project	No	
2.2 Thermal Performance Modelling - Multi-Dwelling Residential		0%
Score Contribution	This credit contributes 13.2% towards the category score.	
Criteria	Have preliminary NatHERS ratings been undertaken for all thermally unique dwellings?	
Question	Criteria Achieved ?	
Townhouse	No	
2.3 Thermal Performance Modelling - Non-Residential		0%
Score Contribution	This credit contributes 15.1% towards the category score.	
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2022 Section J4D6?	
Question	Criteria Achieved ?	
Shop	No	
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2022 Section J (Energy Efficiency), NABERS or Green Star?	
Question	Criteria Achieved ?	
Shop	No	
3.2 Metering - Non-Residential		100%
Score Contribution	This credit contributes 7.5% towards the category score.	
Criteria	Have utility meters been provided for all individual commercial tenants?	
Question	Criteria Achieved ?	
Shop	Yes	
3.3 Metering - Common Areas		0%
Score Contribution	This credit contributes 7.5% towards the category score.	
Criteria	Have all major common area services been separately submetered?	
Question	Criteria Achieved ?	
Shop	No	

4.1 Building Users Guide

0%

Score Contribution	This credit contributes 14.2% towards the category score.
Criteria	Will a building users guide be produced and issued to occupants?
Question	Criteria Achieved ?
Project	No

Water

Overall contribution 5% 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	
Showerhead: All	4 Star WELS (>= 6.0 but <= 7.5)
Bath: All	Scope out
Kitchen Taps: All	>= 5 Star WELS rating
Bathroom Taps: All	>= 5 Star WELS rating
Dishwashers: All	>= 5 Star WELS rating
WC: All	>= 4 Star WELS rating
Urinals: All	Scope out
Washing Machine Water Efficiency:	
FF DWELLING	Occupant to Install
GF RESTARAUNT	Default or unrated
Which non-potable water source is the dwelling/space connected to?: All	RWT
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 Tank	
What is the total roof area connected to the rainwater tank?: RWT	175 m²
Tank Size: RWT	5,000 Litres
Irrigation area connected to tank: RWT	-
Is connected irrigation area a water efficient garden?: RWT	-
Other external water demand connected to tank?: RWT	-

1.1 Potable Water Use Reduction		43%	
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	728 kL		
Output	Proposed (excluding rainwater and recycled water use)		
Project	600 kL		
Output	Proposed (including rainwater and recycled water use)		
Project	525 kL		
Output	% Reduction in Potable Water Consumption		
Project	27 %		
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	383 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	N/A		

Energy

Overall contribution 18% 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 meeting the required NCC2022 insulation levels (total R-value upwards and downwards)?:	Yes
Does all wall and glazing demonstrate meeting the required NCC2022 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)?:	No
Are you installing any other renewable energy system(s)?:	No
Energy Supply:	All-electric
Dwelling Energy Profile	
Building:	BUILDING
Below the floor is:	Ground or Carpark
Above the ceiling is:	Outside
Exposed sides:	3
NatHERS Annual Energy Loads - Heat:	63.0 MJ/sqm
NatHERS Annual Energy Loads - Cool:	20.0 MJ/sqm
NatHERS star rating:	7.0
Type of Heating System:	Reverse cycle space
Heating System Efficiency:	3 Stars (2019 MEPS)
Type of Cooling System:	Refrigerative space
Cooling System Efficiency:	3 Stars (2019 MEPS)
Type of Hot Water System:	Electric Heat Pump Band 1
Is the hot water system shared by multiple dwellings?:	No
% Contribution from solar hot water system:	-
Clothes Line:	Private outdoor clothesline
Clothes Dryer:	No clothes 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:	-

1.1 Thermal Performance Rating - Non-Residential		37%	
Score Contribution	This credit contributes 20.1% towards the category score.		
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC2022 Section J)?		

1.2 Thermal Performance Rating - Residential		0%	✔ Achieved
Score Contribution	This credit contributes 6.6% towards the category score.		
Criteria	What is the average NatHERS rating?		
Output	Average NATHERS Rating (Weighted)		
Townhouse	7.0 Stars		

2.1 Greenhouse Gas Emissions		100%
Score Contribution	This credit contributes 11.6% towards the category score.	
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?	
Output	Reference Building with Reference Services (BCA only)	
Townhouse	2,782 kg CO2	
Output	Proposed Building with Proposed Services (Actual Building)	
Townhouse	2,155 kg CO2	
Output	% Reduction in GHG Emissions	
Townhouse	22 %	

2.2 Peak Demand		100%
Score Contribution	This credit contributes 2.5% towards the category score.	
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?	

2.6 Electrification		100%
Score Contribution	This credit contributes 14.2% towards the category score.	
Criteria	Is the development all-electric?	
Question	Criteria Achieved?	
Project	Yes	

2.7 Energy consumption		100%	
Score Contribution	This credit contributes 18.9% towards the category score.		
Criteria	What is the % reduction in annual energy consumption against the benchmark?		
Output	Reference Building with Reference Services (BCA only)		
Townhouse	24,519 MJ		
Output	Proposed Building with Proposed Services (Actual Building)		
Townhouse	9,127 MJ		
Output	% Reduction in total energy		
Townhouse	62 %		
3.1 Carpark Ventilation		N/A	Scoped Out
This credit was scoped out	OPEN		
3.2 Hot Water		100%	
Score Contribution	This credit contributes 2.5% towards the category score.		
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?		
3.3 External Lighting		100%	
Score Contribution	This credit contributes 1.1% 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 2.2% 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	590 kWh		
Output	Proposed		
Townhouse	118 kWh		
Output	Improvement		
Townhouse	80 %		
3.5 Internal Lighting - Houses and Townhouses		100%	
Score Contribution	This credit contributes 1.1% towards the category score.		
Criteria	Does the development achieve a maximum illumination power density of 4W/sqm or less?		
Question	Criteria Achieved?		
Townhouse	Yes		

3.7 Internal Lighting - Non-Residential		100%	
Score Contribution	This credit contributes 5.0% towards the category score.		
Criteria	Does the maximum illumination power density (W/m2) in at least 90% of the area of the relevant building class meet the requirements in Table J7D3a of the NCC 2022 Vol 1?		
Question	Criteria Achieved ?		
Shop	Yes		
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		0%	Disabled
This credit is disabled	No solar PV renewable energy is in use.		
4.4 Renewable Energy Systems - Other		N/A	Scoped Out
This credit was scoped out	No other (non-solar PV) renewable energy is in use.		
4.5 Solar PV - Houses and Townhouses		0%	Disabled
This credit is disabled	No solar PV renewable energy is in use.		

Stormwater

Overall contribution 14% Minimum required 100%

Which stormwater modelling software 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	101	
Output	Min STORM Score	
Project	100	

IEQ

Overall contribution 9% Minimum required 50%

1.4 Daylight Access - Non-Residential		33%	✔ Achieved
Score Contribution	This credit contributes 28.1% towards the category score.		
Criteria	What % of the nominated floor area has at least 2% daylight factor?		
Annotation	please refer to the SDA for explanation		
Question	Percentage Achieved?		
Shop	33 %		
2.2 Cross Flow Ventilation		100%	
Score Contribution	This credit contributes 4.1% towards the category score.		
Criteria	Are all habitable rooms designed to achieve natural cross flow ventilation?		
Question	Criteria Achieved ?		
Townhouse	Yes		
2.3 Ventilation - Non-Residential		33%	✔ Achieved
Score Contribution	This credit contributes 28.1% towards the category score.		
Criteria	What % of the regular use areas are effectively naturally ventilated?		
Question	Percentage Achieved?		
Shop	-		
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?		
Shop	50 %		
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?		
Question	Value		
Shop	-		
3.1 Thermal comfort - Double Glazing		100%	
Score Contribution	This credit contributes 8.2% towards the category score.		
Criteria	Is double glazing (or better) used to all habitable areas?		
Question	Criteria Achieved ?		
Townhouse	Yes		
3.2 Thermal Comfort - External Shading		100%	
Score Contribution	This credit contributes 4.1% towards the category score.		
Criteria	Is appropriate external shading provided to east, west and north facing glazing?		
Annotation	FIXED SHADIGN DEVICE TO BE PROVIDED FOR THE FF NORTH FACING GLAZING		
Question	Criteria Achieved ?		
Townhouse	Yes		

3.3 Thermal Comfort - Orientation	0%
Score Contribution	This credit contributes 4.1% towards the category score.
Criteria	Are at least 50% of living areas orientated to the north?
Question	Criteria Achieved ?
Townhouse	No

3.4 Thermal comfort - Shading - Non-Residential	100%
Score Contribution	This credit contributes 14.0% towards the category score.
Annotation	FIXED SHADIGN DEVICE TO BE PROVIDED FOR THE GF NORTH FACING GLAZING
Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?
Question	Percentage Achieved?
Shop	100 %

3.5 Thermal Comfort - Ceiling Fans - Non-Residential	0%
Score Contribution	This credit contributes 4.7% towards the category score.
Criteria	What percentage of regular use areas in tenancies have ceiling fans?
Question	Percentage Achieved?
Shop	0 %

4.1 Air Quality - Non-Residential	100%
Score Contribution	This credit contributes 4.7% towards the category score.
Criteria	Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Shop	Yes
Criteria	Does all carpet meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Shop	Yes
Criteria	Does all engineered wood meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Shop	Yes

Transport Overall contribution 1%

1.1 Bicycle Parking - Residential		100%	
Score Contribution	This credit contributes 15.4% towards the category score.		
Criteria	How many secure and undercover bicycle spaces are there for residents?		
Question	Bicycle Spaces Provided ?		
Townhouse	1		
Output	Min Bicycle Spaces Required		
Townhouse	1		
1.2 Bicycle Parking - Residential Visitor		N/A	◈ Scoped Out
This credit was scoped out	Not enough dwellings.		
1.4 Bicycle Parking - Non-Residential		0%	
Score Contribution	This credit contributes 17.6% towards the category score.		
Criteria	Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50% (or a minimum of 2 where there is no planning scheme requirement)?		
Question	Criteria Achieved ?		
Shop	-		
Question	Bicycle Spaces Provided ?		
Shop	-		
1.5 Bicycle Parking - Non-Residential Visitor		0%	
Score Contribution	This credit contributes 8.8% towards the category score.		
Criteria	Have the planning scheme requirements for visitor bicycle parking been exceeded by at least 50% (or a minimum of 1 where there is no planning scheme requirement)?		
Question	Criteria Achieved ?		
Shop	No		
Question	Bicycle Spaces Provided ?		
Shop	-		
1.6 End of Trip Facilities - Non-Residential		0%	⊘ Disabled
This credit is disabled	Credit 1.4 must be complete first.		
2.1 Electric Vehicle Infrastructure		0%	
Score Contribution	This credit contributes 33.0% towards the category score.		
Criteria	Are facilities provided for the charging of electric vehicles?		
Question	Criteria Achieved ?		
Project	No		
2.3 Motorbikes / Mopeds		0%	
Score Contribution	This credit contributes 16.5% 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	-		

Waste

Overall contribution 4%

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

2.1 - Operational Waste - Food & Garden Waste	100%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	Yes

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

Urban Ecology

Overall contribution 0%

1.1 Communal Spaces		0%
Score Contribution	This credit contributes 6.7% 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	
Shop	-	
Output	Minimum Common Space Required	
Shop	18 m²	
2.1 Vegetation		0%
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	1 %	
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		0%
Score Contribution	This credit contributes 5.8% towards the category score.	
Criteria	Is there a tap and floor waste on every balcony and courtyard (including any roof terraces)?	
Question	Criteria Achieved ?	
Townhouse	No	
3.1 Food Production - Residential		0%
Score Contribution	This credit contributes 5.8% towards the category score.	
Criteria	What area of space per resident is dedicated to food production?	
Question	Food Production Area	
Townhouse	-	
Output	Min Food Production Area	
Townhouse	1 m²	

3.2 Food Production - Non-Residential		0%
Score Contribution	This credit contributes 6.7% towards the category score.	
Criteria	What area of space per occupant is dedicated to food production?	
Question	Food Production Area	
Shop	-	
Output	Min Food Production Area	
Shop	5 m²	

Innovation

Overall contribution 0%

1.1 Innovation		0%	⊘ Disabled
This credit is disabled	A minimum project score of 50% is required before an Innovation Credit can be used.		

Disclaimer

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