

# Sustainable Design Assessment

Advertised Document  
Advertised Report - 46 Pages  
Application No: MPS/2022/858/B  
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## 868-870 Pascoe Vale Road, Glenroy

08/03/2024

This document has been endorsed in  
accordance with Condition 8  
of Planning Permit MPS/2022/858/A  
Report - 46 Pages

Signed:

Date: 21/05/2024

For and on behalf of Merri-bek City Council



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# Sustainable Design Assessment (SDA)

## Proposed Childcare Development

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## **DOCUMENT VERSION**

Version	Date	Changelog	Author	Review
0	01/09/22	Issued for Client Review – FCS 47157	BM	
1	22/03/23	Updated as per latest Design – FCS 50892	ZT	LA
2	08/03/24	Updated STORM assessment as per client's comments – FCS 57462	KT	-



## INITIATIVES TO BE MARKED ON DRAWINGS

### **Water & Stormwater Management**

- ☐ Mark-up showing roof catchment area to be diverted to the Rainwater tank for the development – 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 the Rainwater tanks proposed
- ☐ Note showing connection to the toilets
- ☐ Extent of 125.9m<sup>2</sup> of permeable driveway/car park
- ☐ 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 2019
- ☐ Note showing the maximum illumination power density (W/m<sup>2</sup>) of the development meets the requirements in NCC 2019
- ☐ Lighting sensors for external lighting (motion detectors, timers etc.)
- ☐ 3kW Solar PV system on roof of development
- ☐ Light colour roof (low absorptance value < 0.4 as described in NCC)

### **Indoor Environment Quality**

- ☐ Horizontal projection fixed shading for north and east facing windows in all child rooms.

### **Transport**

- ☐ Shower in childcare facility
- ☐ Bike space location for employees and visitors in development (3 in development) + two lockers minimum for the development

### **Urban Ecology**

- ☐ Show extent of vegetated areas around the site (includes lawn)



## INTRODUCTION

Frater Consulting Services have been engaged to undertake a Sustainable Design Assessment for the proposed childcare development located at 868-870 Pascoe Vale Road, Glenroy. This has been prepared to address the Merri-bek City Council's sustainability requirements especially Clause 15.01 -2L *Environmentally Sustainable Development* of the local planning policy

Within Clause 15.01-2L, Merri-bek 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.

STORM Water 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 Water assessment **prepared by WS-MTO** is included as Appendix A.







## SITE DESCRIPTION

The proposed site is located at 868-870 Pascoe Vale Road, Glenroy. The 2,013 m<sup>2</sup> site currently occupied by a dwelling proposed to be demolished prior to construction. It is located within an established residential area approximately 15kms north of the Melbourne CBD.

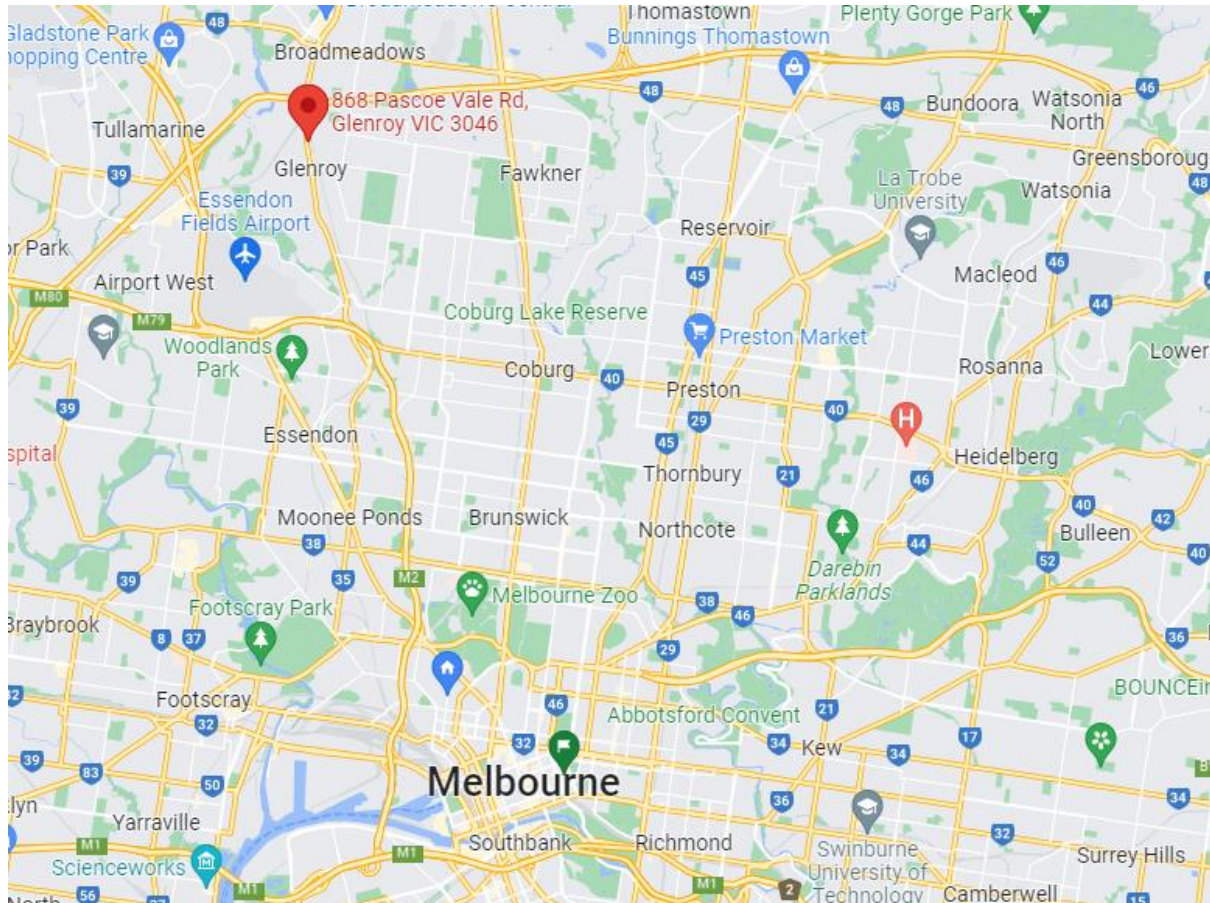


Figure 1: Location of the childcare development in Glenroy with relation to Melbourne CBD (Source: Google Maps)

## PROPOSED DEVELOPMENT

The proposal consists of development of the site into a double storey childcare facility to accommodate up to 106 children. The area of the site is approximately 2,013m<sup>2</sup>. The facility will include six children's rooms, a laundry, staff room, kitchen, offices as well as large outdoor play area at ground floor.



## 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

Prior to the building construction stage of the project, a section J (NCC 2019) DTS assessment will occur with the following commitments:

- 10% improvement on floor and ceiling insulation level requirement from NCC 2019;
- 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 2019, 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.

### 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).

### Hot Water Heating

Hot water will be provided with efficient small electric storage/instantaneous systems. Hot water usage within the development will be low. Electric storage unit will 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.

### Lighting

The maximum illumination power density ( $W/m^2$ ) of the development will meet NCC 2019 requirements in by the use of LED throughout the development. **Lighting levels will not exceed  $4.5 W/m^2$  for all office, staff and childcare rooms**

Common, external, service areas lighting will be controlled using occupancy sensor and/or daylight sensors. Ventilation in these areas will be controlled using timers and other sensors.

### **Energy Efficient Appliances**

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

### **Light Coloured Roof**

The roof paint for the development will be chosen with light colour (low absorptance value < 0.4 as described in NCC) which will reduce the heat island effect and heat loads.

### **Variable Speed Drives**

Variable speed drives will be installed on all major pumps and fans.

### **Solar PV System**

A 3kW solar photovoltaic system for renewable energy generation will be installed on the roof of development. This will off-set a large portion of greenhouse gas emissions and energy use for the project (lighting, pumps, fans etc.). Points are awarded on BESS when the solar power system provides 5% of the annual energy consumption of the building it supplies. The 3kW panel provided 5% of the annual energy consumption which is a justified size for the development.

#### Energy 4.2 Renewable Energy Systems - Solar

What % of the estimated energy consumption of the building class it supplies does the solar power system provide?

You are using the built in calculation tools. This credit is calculated from information you have entered above.

☐ Annotate

Solar Power - Energy Generation  
per year  
kWh

3,870

% of Building's Energy  
Percentage %

5 %





## 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;
- Dishwasher – 5 Star;
- Showerhead if provided – 4 Star with aeration device (6.0-7.5L/min)

### Rainwater Collection & Use

Rainwater runoff from entire roof area of childcare facility will be collected and stored in rainwater tank(s)<sup>1</sup> with a total effective capacity of 15,000L for the development.

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

**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 and laundry throughout the development as well as wash-down areas. These initiatives will reduce significantly the stormwater impacts of the development.

### Stormwater Treatment – Permeable Paving

A minimum of 125.9m<sup>2</sup> of driveway / car park in the development will be designed to be permeable. This will help towards reducing the overall stormwater outflows from the site.

### Water Efficient Appliances

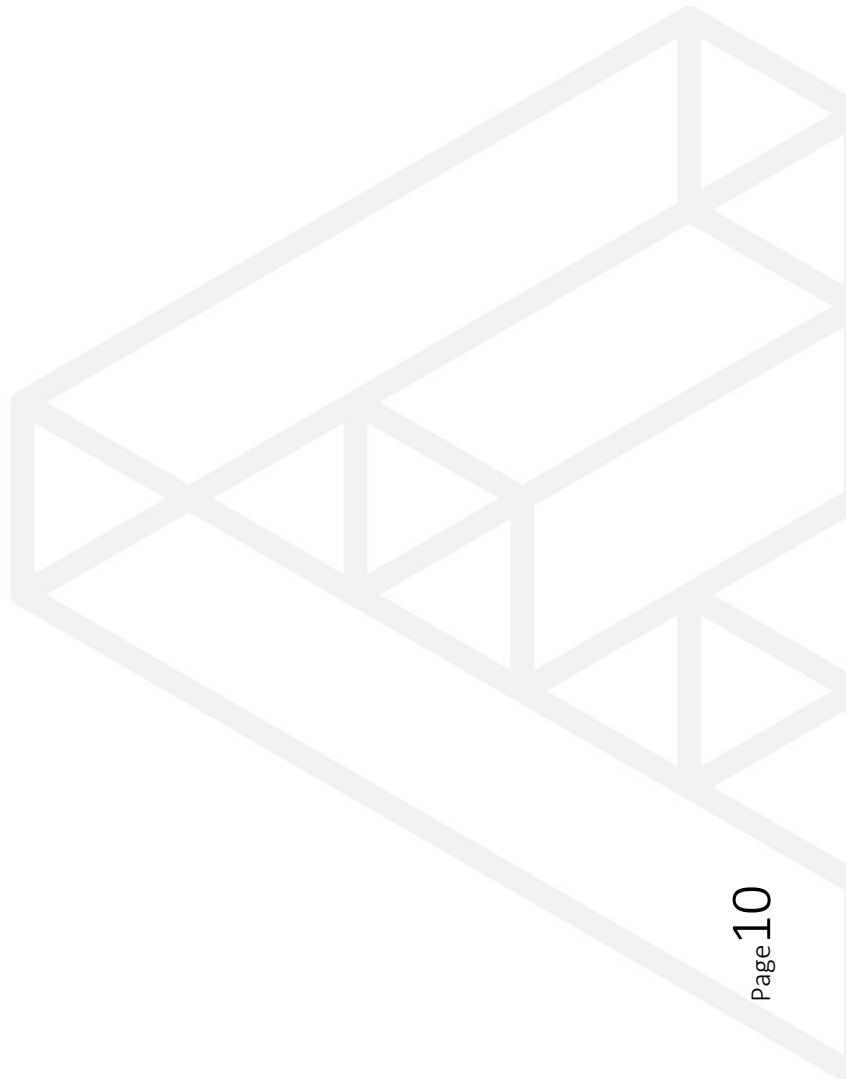
All appliances provided in the development as part of the base building work (e.g. dishwasher) will be chosen within one WELS star of the best available.

<sup>1</sup> 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.



### **Water Efficient Landscaping**

Native or drought-tolerant plants will be implemented for the landscaped areas on site.  
Use of water or irrigation will not be required after an initial period when plants are getting established.





## 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 C 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 C for formaldehyde limits.

### Daylight Levels

Daylight penetration will be enhanced with the use of light internal colours to improve daylight reflection. All children room will be provided with large windows. The depth of most child room from a window will be limited to 9m and multiple windows on different façade will be implemented wherever possible which will allow for large amount of daylight to penetrate the rooms.

Please refer to Appendix B for the daylight access hand calculation showing daylight best practice requirements is achieved by the development.

### Ventilation

Wherever possible, the design should allow for cross flow ventilation as it will reduce the need for mechanical ventilation. Openable windows will be specified throughout the children's rooms and other regular occupied spaces to enable natural ventilation.

6/6 children rooms achieve natural crossflow ventilation, and these rooms account for approximately 100% of the regular occupied areas. 100% has been entered in BESS Credit IEQ2.3

### Shading

Improved horizontal projection fixed shading (large canopy) with a minimum length of 45% of the height from the bottom windowsill to the bottom of the eaves will be provided for all **north and east facing glazing** on child rooms. The shading is considered deemed appropriate for childcare, as adjustable vertical shading would be a hazard for children moving in and out of the room. This will help to reduce glare and control solar gains, improving the thermal comfort of the Childcare.

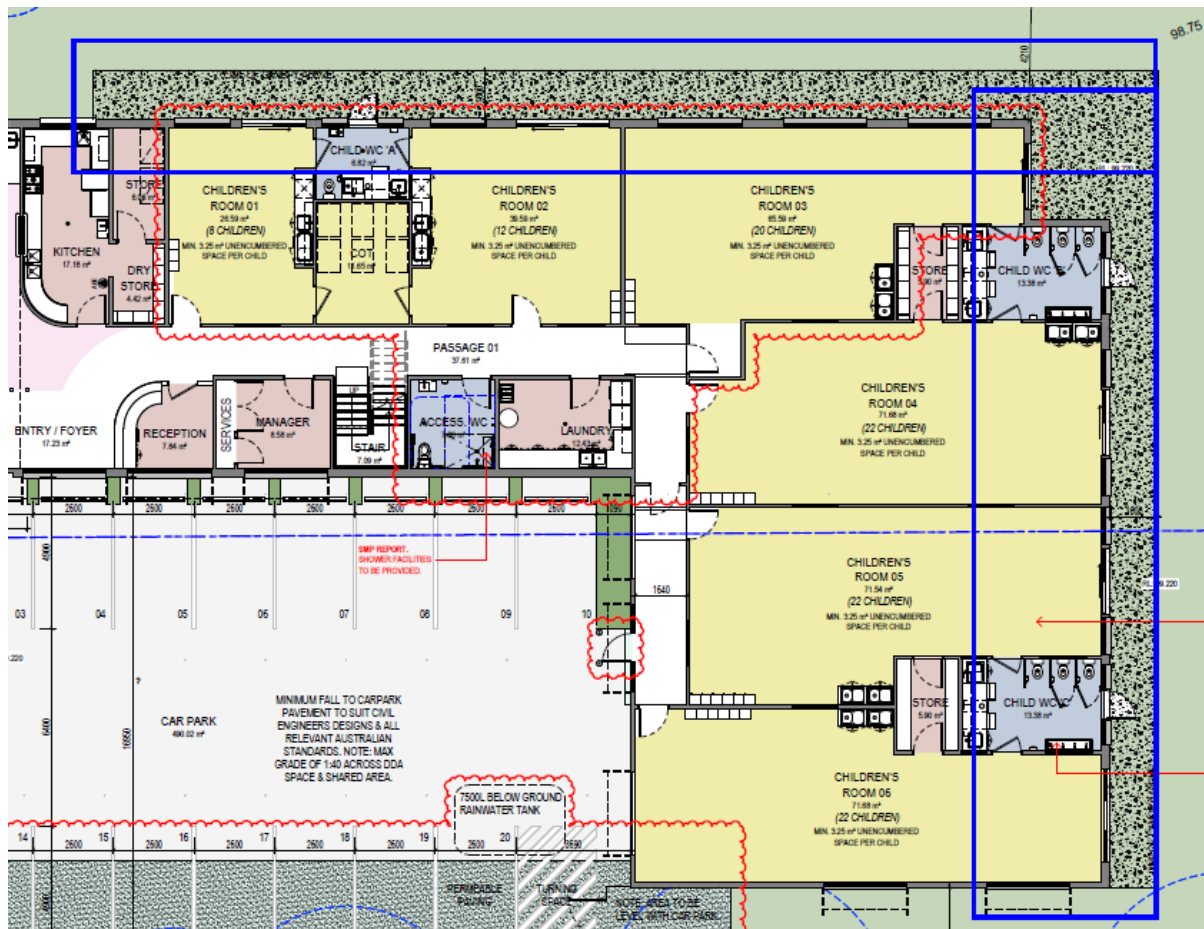


Figure 2: Canopy shading for child rooms (blue markup)

Based on the shading proposed in the development, we have input 90% under IEQ 3.4 in BESS.

## Acoustic Insulation

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



## 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**

The childcare will be separately metered for potable water and energy. Effective metering ensures that 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 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 on the ground floor. The storage area will be sufficiently sized to accommodate the general, organic and recycling waste. Recycling facilities will be as conveniently accessible as the general 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**

Employees and visitors will be able to store their bicycle within the dedicated bicycle storage areas. Three bicycle spaces will be provided for staff and visitors.

A minimum of two lockers will be provided for the development.



## 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 a mix of vinyl and carpet (adhesive-free carpet tiles) throughout the development. Carpet flooring and vinyl flooring when possible will be selected from products/materials certified under any of the following:

- Carpet Institute of Australia Limited, Environmental Certification Scheme (ECS) v1.2;
- Ecospecifier GreenTag GreenRate V3.2; and/or
- Good Environmental Choice (GECA).

### **Joinery**

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

- Ecospecifier GreenTag GreenRate V3.1;
- Good Environmental Choice (GECA); and/or
- The Institute for Market Transformation to Sustainability (MTS) Sustainable Materials Rating Technology standard Version 4.0 – SmaRT 4.0.

The use of Ecological Panel (or equivalent) will be investigated, which is created from 100% post-consumer recycled products.

### **Steel**

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

<sup>2</sup> 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).



## URBAN ECOLOGY

In highly urbanized environments, such as metropolitan Melbourne, it is important to recognize the importance of maintaining and increasing the health of our urban ecosystems to improve living conditions not only for the fauna but also ourselves. We can improve our urban ecosystem through the incorporation of vegetation through landscaping for both new and existing developments.

### Landscaping

The landscaping onsite will provide the staff and children with a pleasant surrounding environment. The design will incorporate a mix of native species to help maintain local biodiversity.

### 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 Pascoe Vale development will meet the best practice requirement of the City of Merri-bek through the different initiatives describe in this SDA 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 SMP 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





## **Stormwater initiatives**

### **Rainwater Tank**

#### **(15,000L Rainwater tank)**

The roof catchment area of the childcare (as described above) will be diverted to 15,000L rainwater tanks. The rainwater collected will be used for toilet flushing and laundry in the development.

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.**

### **Permeable Paving**

A minimum of 125.9m<sup>2</sup> of driveway / car park in the development will be designed to be permeable. This will reduce the overall stormwater runoff from part of the site.

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.

**It should be noted that permeable areas have been maximised in the development which will reduce the overall stormwater outflows from the site. Vegetated areas are provided in the proposed development reducing the heat island effect and improving the local habitat.**





## Stormwater Results

The initiatives and areas described above have been applied to the STORM calculator prepared by WS-MTO and the proposed development has achieved a score of 100%.



## STORM Rating Report

TransactionID: 0  
Municipality: MERRI-BEK  
Rainfall Station: MORELAND  
Address: 868-870 Pascoe Vale Road

Glenroy  
VIC  
Assessor: WS- MTO  
Development Type: Commercial/Retail  
Allotment Site (m2): 2,013.00  
STORM Rating %: 100

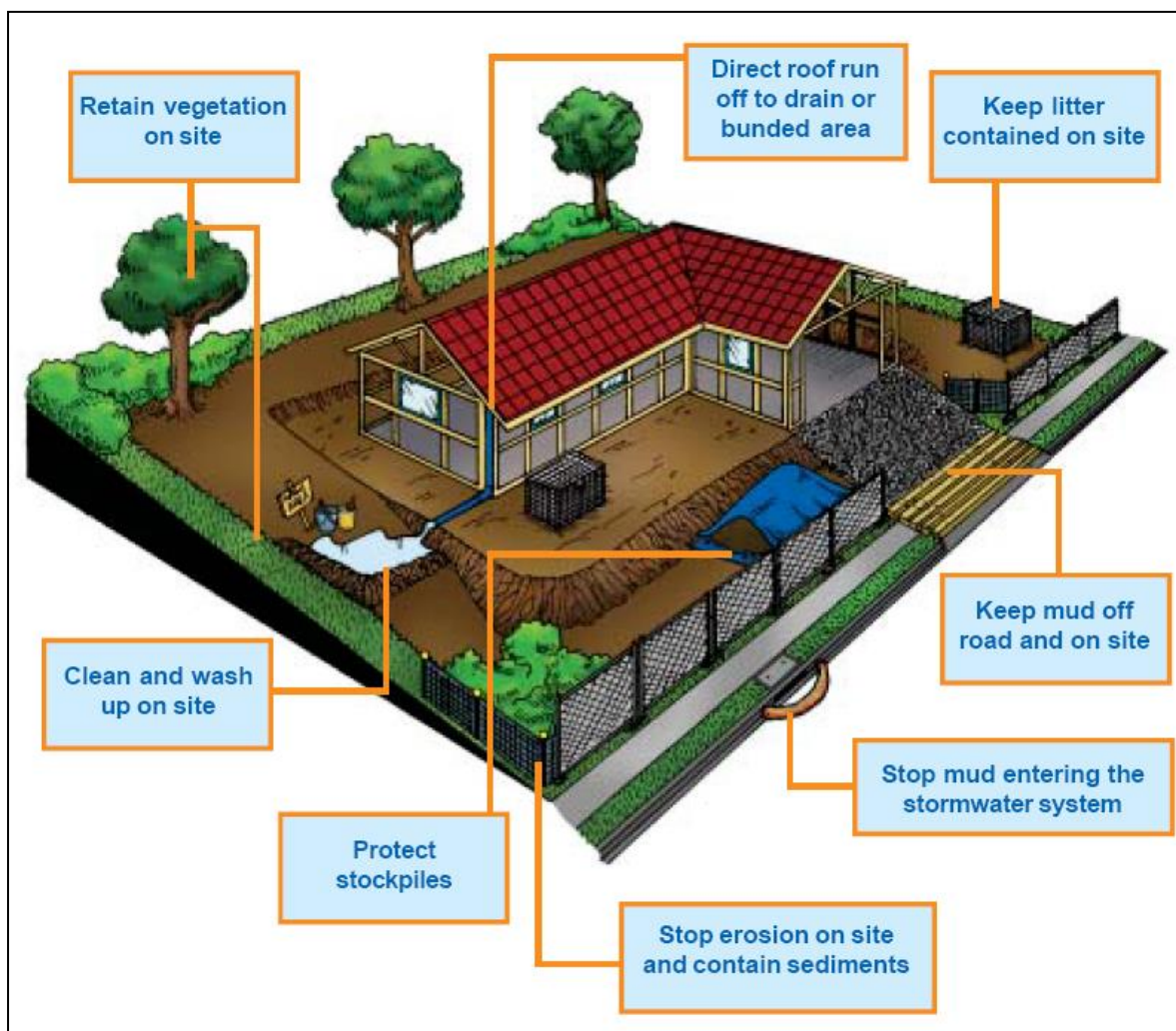
Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Roof to RWT	781.00	Rainwater Tank	15,000.00	100	150.50	78.00
Driveway	400.00	None	0.00	0	0.00	0.00

It should be noted that the entire development is connected to the rainwater tank. 100 occupants have been chosen for the childcare occupancy as the childcare can accommodate 106 children .



## **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” booklet 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>



## APPENDIX B – WSUD MAINTENANCE & INSTALLATION

### **Installation**

#### **Rainwater Tank(s)**

The rainwater tank(s) will be installed above ground. 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 man hole 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 and laundry) will be required to be installed as per the chosen manufacturer specifications.

#### **Permeable Paving**

Permeable paving used for driveway shall be installed in strict accordance with the site plans and the permeable paving manufacturer specific drawings and requirements.

### **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.

#### **Permeable Paving**

Permeable paving should be inspected for damage after large storm events (48.2mm in one hour is considered a large storm event in Melbourne – 1 in 100 year storm) and should be inspected every 3-month.

During inspection, the following should be looked for:

- Water ponding on porous joints or permeable pavers;
- Soggy and boggy soils;



- Uneven surface;
- Rubbish, leaf litter and sediment; and
- Blocked underdrainage.

## **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 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

<http://www.health.gov.au/internet/publications/publishing.nsf/Content/ohp-enhealth-raintank-cnt-l~ohp-enhealth-raintank-cnt-l-5~ohp-enhealth-raintank-cnt-l-5.5> 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.

### **Permeable Paving**

Permeable paving will require ongoing maintenance based on the inspection. The following maintenance task could be required:



Item	What to check for	Inspected	Maintenance undertaken	Further action required or comment
<b>Civil components – Permeable pavement</b>				
<b>Permeability</b>	Pavement area is free draining (i.e. no clogging of the pavement surface).  Clogging is generally evident by water ponding on the surface of the permeable paving more than 2 hours after rainfall.			
<b>Pavement surface</b>	No uneven paver surface (i.e. pavement surface lifting and rutting).  No physical damage to the pavement surface – look for cracks and holes.			
<b>Infill material</b>	Infill material is present between pavers.  No scour occurring.			
<b>Landscape components – Permeable pavement</b>				
<b>Weeds</b>	Less than 10% of infill surface area (where present) covered by weeds.			

## 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 and laundry 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.

### Permeable Paving

Commissioning should occur as per the chosen manufacturer specifications.





## 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	<ul style="list-style-type: none"><li>• Check for any damage/compression</li><li>• Mosquitoes infestation</li></ul>
	Every 2 years	<ul style="list-style-type: none"><li>• Sludge Build up – if sludge build up occurs a vacuum tank needs to be called out to site.</li></ul>
Inspect roofs & gutters	Every 6 months	<ul style="list-style-type: none"><li>• Clean out of leaves / debris.</li><li>• Remove any overhanging branches onsite.</li></ul>
Inspection of Permeable Paving	3-Monthly	<ul style="list-style-type: none"><li>• Check joints</li><li>• Check soil</li><li>• Check for blockages</li><li>• Check for ponding</li><li>• Check for uneven surfaces</li></ul>
	Following large storm event	



## 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:

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

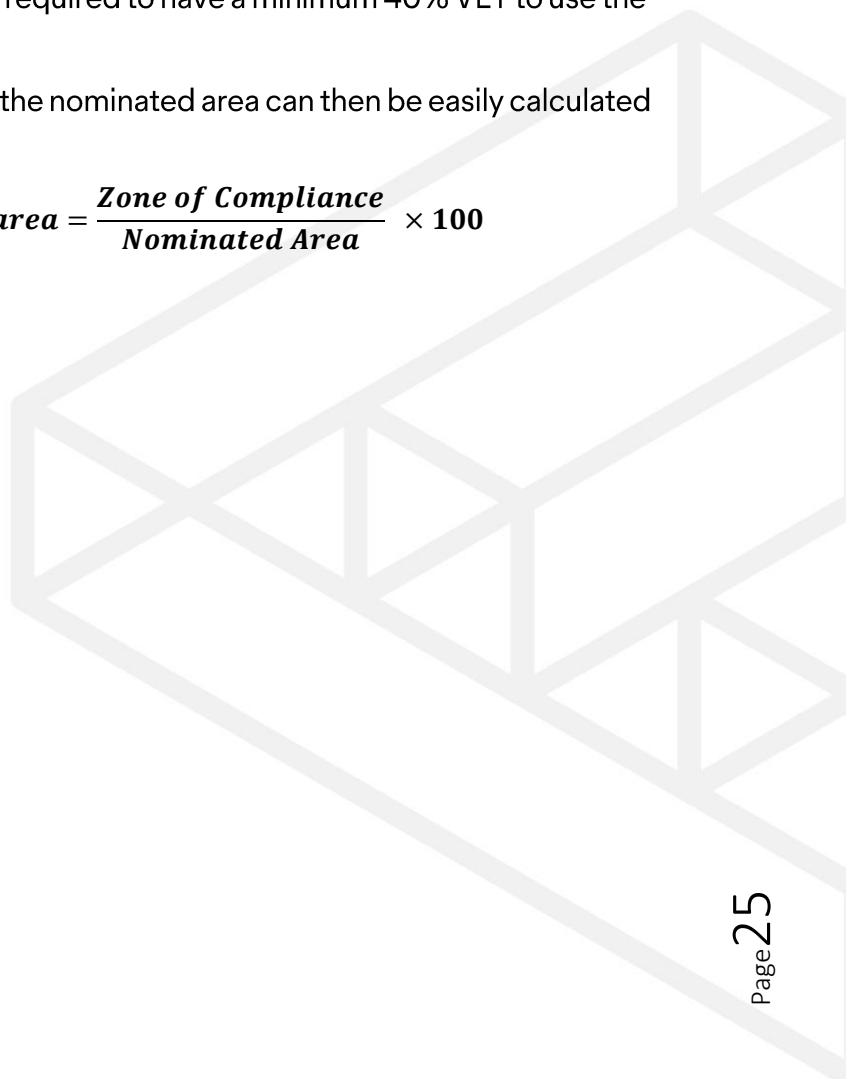
*w* is the width of the glazing serving the room

*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:

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



## Site Description

The proposed development is a childcare facility therefore the nominated areas for the Hand Calculation are comprised of all children rooms (blue).

The desktop/table level has been estimated to be 400mm within children's rooms.

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

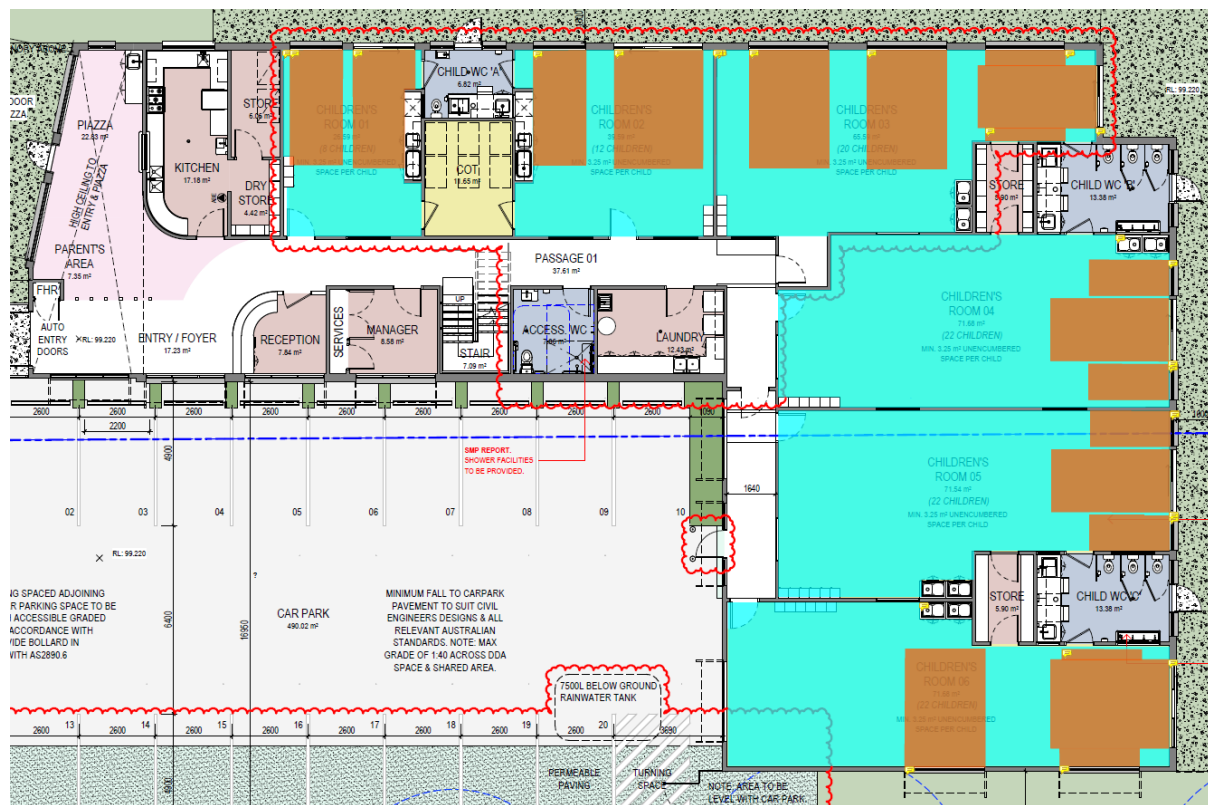


Figure 2: Compliance zone at ground floor

	Nominated Areas (m <sup>2</sup> )	Compliant Areas (m <sup>2</sup> )	Compliant Areas (%)
Childroom 1	26.6	14.3	
Childroom 2	39.6	18.9	
Childroom 3	65.6	32.9	
Childroom 4	71.7	14.95	
Childroom 5	71.5	14.95	
Childroom 6	71.68	25.5	
<b>TOTAL</b>	<b>346.68</b>	<b>121.5</b>	<b>35%</b>

The green star hand calculation for the proposed childcare shows that the development will achieve and exceed SDAPP best practice requirement within each child room achieving 35 % of floor area at 2% daylight factor.



## 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 <sup>2</sup> per hour
ASTM D5116 - 4-PC (4-Phenylcyclohexene)	0.05mg/m <sup>2</sup> per hour
ISO 16000 / EN 13419 - TVOC at three days	0.5 mg/m <sup>2</sup> per hour
ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours	0.5mg/m <sup>2</sup> per hour



**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	$\leq 1\text{mg/L}$
AS/NZS 1859.1:2004 - Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	$\leq 1.5\text{ mg/L}$
AS/NZS 1859.2:2004 - MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	$\leq 1\text{mg/L}$
AS/NZS 4357.4 - Laminated Veneer Lumber (LVL)	$\leq 1\text{mg/L}$
Japanese Agricultural Standard MAFF Notification No.701 Appendix Clause 3 (11) - LVL	$\leq 1\text{mg/L}$
JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460	$\leq 1\text{mg/L}$
JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460	$\leq 1\text{mg/L}$
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	$\leq 0.1\text{ mg/m}^2\text{hr}^*$
ASTM D5116 (applicable to high pressure laminates and compact laminates)	$\leq 0.1\text{ mg/m}^2\text{hr}$
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	$\leq 0.1\text{ mg/m}^2\text{hr}$ (at 3 days)
ASTM D6007	$\leq 0.12\text{mg/m}^{3**}$
ASTM E1333	$\leq 0.12\text{mg/m}^{3***}$
EN 717-1 (also known as DIN EN 717-1)	$\leq 0.12\text{mg/m}^3$
EN 717-2 (also known as DIN EN 717-2)	$\leq 3.5\text{mg/m}^2\text{hr}$

\*mg/m<sup>2</sup>hr may also be represented as mg/m<sup>2</sup>/hr.





## APPENDIX E – BESS ASSESSMENT

# BESS Report

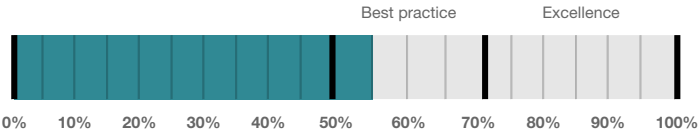
Built Environment Sustainability Scorecard



This BESS report outlines the sustainable design commitments of the proposed development at 868 Pascoe Vale Rd Glenroy Victoria 3046. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Merri-bek City Council (Moreland).

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

### Your BESS Score



56%

### Project details

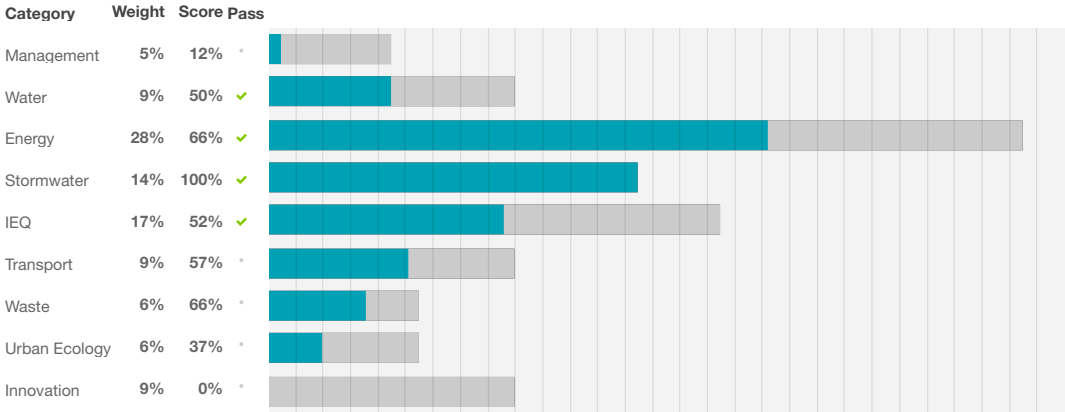
**Address** 868 Pascoe Vale Rd Glenroy Victoria 3046  
**Project no** 91F87965-R3  
**BESS Version** BESS-6

**Site type** Non-residential development  
**Account** vana@fraterconsultingservices.com.au  
**Application no.**  
**Site area** 2,013.00 m<sup>2</sup>  
**Building floor area** 740.00 m<sup>2</sup>  
**Date** 01 March 2024  
**Software version** 1.8.1-B.407



### Performance by category

● Your development ● Maximum available



Buildings

Name	Height	Footprint	% of total footprint
Childcare	2	740 m²	100%

Dwellings & Non Res Spaces

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Other building				
Childcare	1	740 m²	Childcare	100%
Total	1	740 m²	100%	

Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Management 3.2	Individual utility meters annotated	To be printed Refer to drawings	✓
Water 3.1	Water efficient garden annotated	To be printed Refer to drawings	✓
Energy 4.2	Floor plans showing location of photovoltaic panels as described.	To be printed Refer to drawings	✓
Stormwater 1.1	Location of any stormwater management systems used in STORM or MUSIC modelling (e.g. Rainwater tanks, raingarden, buffer strips)	To be printed Refer to drawings	✓
Transport 1.4	All nominated non-residential bicycle parking spaces	To be printed Refer to drawings	✓
Transport 1.5	All nominated non-residential visitor bicycle parking spaces	To be printed Refer to drawings	✓
Transport 1.6	Showers, change rooms and lockers as nominated	To be printed Refer to drawings	✓
Waste 2.1	Location of food and garden waste facilities	To be printed Refer to drawings	✓
Waste 2.2	Location of recycling facilities	To be printed Refer to drawings	✓
Urban Ecology 2.1	Vegetated areas	To be printed Refer to drawings	✓

Supporting evidence

Credit	Requirement	Response	Status
Energy 1.1	Energy Report showing calculations of reference case and proposed buildings		-
Energy 3.7	Provide a written description of the average lighting power density to be installed in the development and specify the lighting type(s) to be used.		-
Energy 4.2	Specifications of the solar photovoltaic system(s).		-
Stormwater 1.1	STORM report or MUSIC model		-


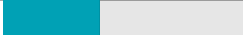


Credit	Requirement	Response	Status
IEQ 1.4	A short report detailing assumptions used and results achieved.		-

## Credit summary


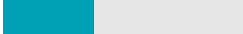










### Management Overall contribution 4.5%

		12%
	1.1 Pre-Application Meeting	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%	50%	✓ Pass
1.1 Potable water use reduction		40%	
3.1 Water Efficient Landscaping		100%	
4.1 Building Systems Water Use Reduction		N/A	✦ Scoped Out
No sprinkler system			







### Energy Overall contribution 27.5%

	Minimum required 50%	66%	✓ Pass
1.1 Thermal Performance Rating - Non-Residential		37%	
2.1 Greenhouse Gas Emissions		100%	
2.2 Peak Demand		100%	
2.3 Electricity Consumption		100%	
2.4 Gas Consumption		N/A	✦ Scoped Out
No gas connection in use			
3.1 Carpark Ventilation		N/A	✦ Scoped Out
No basement			
3.2 Hot Water		100%	
3.7 Internal Lighting - Non-Residential		100%	
4.1 Combined Heat and Power (cogeneration / trigeneration)		N/A	✦ Scoped Out
No cogeneration or trigeneration system in use.			
4.2 Renewable Energy Systems - Solar		100%	
4.4 Renewable Energy Systems - Other		0%	⊘ Disabled
No other (non-solar PV) renewable energy is in use.			



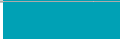

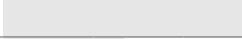
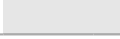

**Stormwater Overall contribution 13.5%**

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



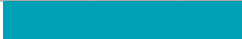

**IEQ Overall contribution 16.5%**

		Minimum required 50%	52%	✓ Pass
1.4 Daylight Access - Non-Residential			35%	✓ Achieved
2.3 Ventilation - Non-Residential			50%	✓ Achieved
3.4 Thermal comfort - Shading - Non-residential			93%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential			0%	
4.1 Air Quality - Non-Residential			100%	



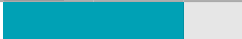



**Transport Overall contribution 9.0%**

			57%	
1.4 Bicycle Parking - Non-Residential			100%	
1.5 Bicycle Parking - Non-Residential Visitor			100%	
1.6 End of Trip Facilities - Non-Residential			100%	
2.1 Electric Vehicle Infrastructure			0%	
2.2 Car Share Scheme			N/A	✚ Scoped Out
				Not viable
2.3 Motorbikes / Mopeds			0%	

**Waste Overall contribution 5.5%**

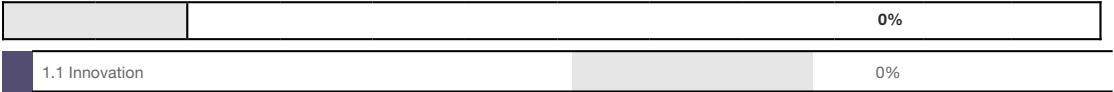
			66%	
1.1 - Construction Waste - Building Re-Use			0%	
2.1 - Operational Waste - Food & Garden Waste			100%	
2.2 - Operational Waste - Convenience of Recycling			100%	

**Urban Ecology Overall contribution 5.5%**

			37%	
1.1 Communal Spaces			0%	
2.1 Vegetation			75%	
2.2 Green Roofs			0%	
2.3 Green Walls and Facades			0%	
3.2 Food Production - Non-Residential			0%	



Innovation Overall contribution 9.0%



## Credit breakdown

### Management Overall contribution 1%

<b>1.1 Pre-Application Meeting</b>	0%
Score Contribution	This credit contributes 37.5% towards the category score.
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?
Question	Criteria Achieved ?
Project	No
<b>2.3 Thermal Performance Modelling - Non-Residential</b>	0%
Score Contribution	This credit contributes 25.0% towards the category score.
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2019 Section J1.5?
Question	Criteria Achieved ?
Other building	No
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2019 Section J (Energy Efficiency), NABERS or Green Star?
Question	Criteria Achieved ?
Other building	No
<b>3.2 Metering - Non-Residential</b>	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Have utility meters been provided for all individual commercial tenants?
Question	Criteria Achieved ?
Other building	Yes
<b>3.3 Metering - Common Areas</b>	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Have all major common area services been separately submetered?
Question	Criteria Achieved ?
Other building	No
<b>4.1 Building Users Guide</b>	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Will a building users guide be produced and issued to occupants?
Question	Criteria Achieved ?
Project	No

**Water** Overall contribution 4% Minimum required 50%





<b>Water Approach</b>	
What approach do you want to use for Water?:	Use the built in calculation tools
<b>Project Water Profile Question</b>	
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
<b>Water fixtures, fittings and connections</b>	
Showerhead:	4 Star WELS ( $\geq 6.0$ but $\leq 7.5$ )
Bath:	Scope out
Kitchen Taps:	$\geq 5$ Star WELS rating
Bathroom Taps:	$\geq 5$ Star WELS rating
Dishwashers:	$\geq 5$ Star WELS rating
WC:	$\geq 4$ Star WELS rating
Urinals:	Scope out
Washing Machine Water Efficiency:	Occupant to Install
Which non-potable water source is the dwelling/space connected to?:	RWT
Non-potable water source connected to Toilets:	Yes
Non-potable water source connected to Laundry (washing machine):	No
Non-potable water source connected to Hot Water System:	No
<b>Rainwater Tank</b>	
What is the total roof area connected to the rainwater tank?: RWT	781 m <sup>2</sup>
Tank Size: RWT	15,000 Litres
Irrigation area connected to tank: RWT	-
Is connected irrigation area a water efficient garden?: RWT	No
Other external water demand connected to tank?: RWT	-

<b>1.1 Potable water use reduction</b>		40%
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	1800 kL	
Output	Proposed (excluding rainwater and recycled water use)	
Project	1497 kL	
Output	Proposed (including rainwater and recycled water use)	
Project	1275 kL	
Output	% Reduction in Potable Water Consumption	
Project	29 %	
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	771 kL	
<b>3.1 Water Efficient Landscaping</b>		100%
Score Contribution	This credit contributes 16.7% towards the category score.	
Criteria	Will water efficient landscaping be installed?	
Question	Criteria Achieved ?	
Project	Yes	
<b>4.1 Building Systems Water Use Reduction</b>		N/A  Scoped Out
This credit was scoped out	No sprinkler system	

**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 a minimum 10% improvement in required NCC2019 insulation levels (total R-value upwards and downwards)?:	Yes
Does all wall and glazing demonstrate meeting the required NCC2019 facade calculator (or better than the total allowance)?:	Yes
Are heating and cooling systems within one Star of the most efficient equivalent capacity unit available, or Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available?:	Yes
Are water heating systems within one star of the best available, or 85% or better than the most efficient equivalent capacity unit?:	Yes
<b>Non-Residential Building Energy Profile</b>	
Heating, Cooling & Comfort Ventilation - Electricity - reference fabric and reference services:	60,000 kWh
Heating, Cooling & Comfort Ventilation - Electricity - proposed fabric and reference services:	60,000 kWh
Heating, Cooling & Comfort Ventilation - Electricity - proposed fabric and proposed services:	60,000 kWh
Heating - Wood - reference fabric and reference services:	-
Heating - Wood - proposed fabric and reference services:	-
Heating - Wood - proposed fabric and proposed services:	-
Hot Water - Electricity - Baseline:	1,000 kWh
Hot Water - Electricity - Proposed:	899 kWh
Lighting - Baseline:	6,000 kWh
Lighting - Proposed:	6,000 kWh
Peak Thermal Cooling Load - Baseline:	-
Peak Thermal Cooling Load - Proposed:	-
<b>Solar Photovoltaic system</b>	
System Size (lesser of inverter and panel capacity): Solar PV	3.0 kW peak
Orientation (which way is the system facing)?: Solar PV	North
Inclination (angle from horizontal): Solar PV	25.0 Angle (degrees)
<b>1.1 Thermal Performance Rating - Non-Residential</b>	37%
Score Contribution	This credit contributes 44.4% towards the category score.
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC 2019 Section J)?
<b>2.1 Greenhouse Gas Emissions</b>	100%
Score Contribution	This credit contributes 11.1% towards the category score.
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?



<b>2.2 Peak Demand</b>		100%
Score Contribution	This credit contributes 5.6% towards the category score.	
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?	
<b>2.3 Electricity Consumption</b>		100%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	What is the % reduction in annual electricity consumption against the benchmark?	
<b>2.4 Gas Consumption</b>		N/A  Scoped Out
This credit was scoped out	No gas connection in use	
<b>3.1 Carpark Ventilation</b>		N/A  Scoped Out
This credit was scoped out	No basement	
<b>3.2 Hot Water</b>		100%
Score Contribution	This credit contributes 5.6% towards the category score.	
Criteria	What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?	
<b>3.7 Internal Lighting - Non-Residential</b>		100%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Does the maximum illumination power density (W/m2) in at least 90% of the area of the relevant building class meet the requirements in Table J6.2a of the NCC 2019 Vol 1?	
Question	Criteria Achieved ?	
Other building	Yes	
<b>4.1 Combined Heat and Power (cogeneration / trigeneration)</b>		N/A  Scoped Out
This credit was scoped out	No cogeneration or trigeneration system in use.	
<b>4.2 Renewable Energy Systems - Solar</b>		100%
Score Contribution	This credit contributes 5.6% towards the category score.	
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?	
Output	Solar Power - Energy Generation per year	
Other building	3,870 kWh	
Output	% of Building's Energy	
Other building	18 %	
<b>4.4 Renewable Energy Systems - Other</b>		0%  Disabled
This credit is disabled	No other (non-solar PV) renewable energy is in use.	

**Stormwater**    Overall contribution 14%    Minimum required 100%


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

**IEQ** Overall contribution 9% Minimum required 50%

<b>1.4 Daylight Access - Non-Residential</b>		35%	✓ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.		
Criteria	What % of the nominated floor area has at least 2% daylight factor?		
Question	Percentage Achieved?		
Other building	35 %		
<b>2.3 Ventilation - Non-Residential</b>		50%	✓ Achieved
Score Contribution	This credit contributes 35.3% towards the category score.		
Criteria	What % of the regular use areas are effectively naturally ventilated?		
Question	Percentage Achieved?		
Other building	100 %		
Criteria	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668.2:2012?		
Question	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668:2012?		
Other building	-		
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?		
Question	Value		
Other building	-		
<b>3.4 Thermal comfort - Shading - Non-residential</b>		93%	
Score Contribution	This credit contributes 17.6% towards the category score.		
Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?		
Question	Percentage Achieved?		
Other building	90 %		
<b>3.5 Thermal Comfort - Ceiling Fans - Non-Residential</b>		0%	
Score Contribution	This credit contributes 5.9% towards the category score.		
Criteria	What percentage of regular use areas in tenancies have ceiling fans?		
Question	Percentage Achieved?		
Other building	0 %		
<b>4.1 Air Quality - Non-Residential</b>		100%	
Score Contribution	This credit contributes 5.9% towards the category score.		
Criteria	Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits?		
Question	Criteria Achieved ?		
Project	Yes		

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

**Transport** Overall contribution 5%

<b>1.4 Bicycle Parking - Non-Residential</b>		100%
Score Contribution	This credit contributes 28.6% 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 ?	
Other building	Yes	
Question	Bicycle Spaces Provided ?	
Other building	2	
<b>1.5 Bicycle Parking - Non-Residential Visitor</b>		100%
Score Contribution	This credit contributes 14.3% 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 ?	
Other building	Yes	
Question	Bicycle Spaces Provided ?	
Other building	1	
<b>1.6 End of Trip Facilities - Non-Residential</b>		100%
Score Contribution	This credit contributes 14.3% towards the category score.	
Criteria	Where adequate bicycle parking has been provided. Is there also: * 1 shower for the first 5 employee bicycle spaces plus 1 to each 10 employee bicycles spaces thereafter, * changing facilities adjacent to showers, and * one secure locker per employee bicycle space in the vicinity of the changing / shower facilities?	
Question	Number of showers provided ?	
Other building	1	
Question	Number of lockers provided ?	
Other building	2	
Output	Min Showers Required	
Other building	1	
Output	Min Lockers Required	
Other building	2	
<b>2.1 Electric Vehicle Infrastructure</b>		0%
Score Contribution	This credit contributes 28.6% towards the category score.	
Criteria	Are facilities provided for the charging of electric vehicles?	
Question	Criteria Achieved ?	
Project	No	
<b>2.2 Car Share Scheme</b>		N/A  Scoped Out
This credit was scoped out	Not viable	



<b>2.3 Motorbikes / Mopeds</b>		0%
Score Contribution	This credit contributes 14.3% towards the category score.	
Criteria	Are a minimum of 5% of vehicle parking spaces designed and labelled for motorbikes (must be at least 5 motorbike spaces)?	
Question	Criteria Achieved ?	
Project	No	

## Waste Overall contribution 4%

<b>1.1 - Construction Waste - Building Re-Use</b>		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	
<b>2.1 - Operational Waste - Food &amp; Garden Waste</b>		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	
<b>2.2 - Operational Waste - Convenience of Recycling</b>		100%
Score Contribution	This credit contributes 33.3% towards the category score.	
Criteria	Are the recycling facilities at least as convenient for occupants as facilities for general waste?	
Question	Criteria Achieved ?	
Project	Yes	

## Urban Ecology Overall contribution 2%

<b>1.1 Communal Spaces</b>		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Is there at least the following amount of common space measured in square meters : * 1m <sup>2</sup> for each of the first 50 occupants * Additional 0.5m <sup>2</sup> for each occupant between 51 and 250 * Additional 0.25m <sup>2</sup> for each occupant above 251?	
Question	Common space provided	
Other building	-	
Output	Minimum Common Space Required	
Other building	37 m <sup>2</sup>	
<b>2.1 Vegetation</b>		75%
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	20 %	
<b>2.2 Green Roofs</b>		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	
<b>2.3 Green Walls and Facades</b>		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	
<b>3.2 Food Production - Non-Residential</b>		0%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	What area of space per occupant is dedicated to food production?	
Question	Food Production Area	
Other building	-	
Output	Min Food Production Area	
Other building	10 m <sup>2</sup>	

## Innovation Overall contribution 0%

<b>1.1 Innovation</b>		0%
Score Contribution	This credit contributes 100.0% towards the category score.	
Criteria	What percentage of the Innovation points have been claimed (10 points maximum)?	

## Disclaimer

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