

# Penola Catholic College, Glenroy

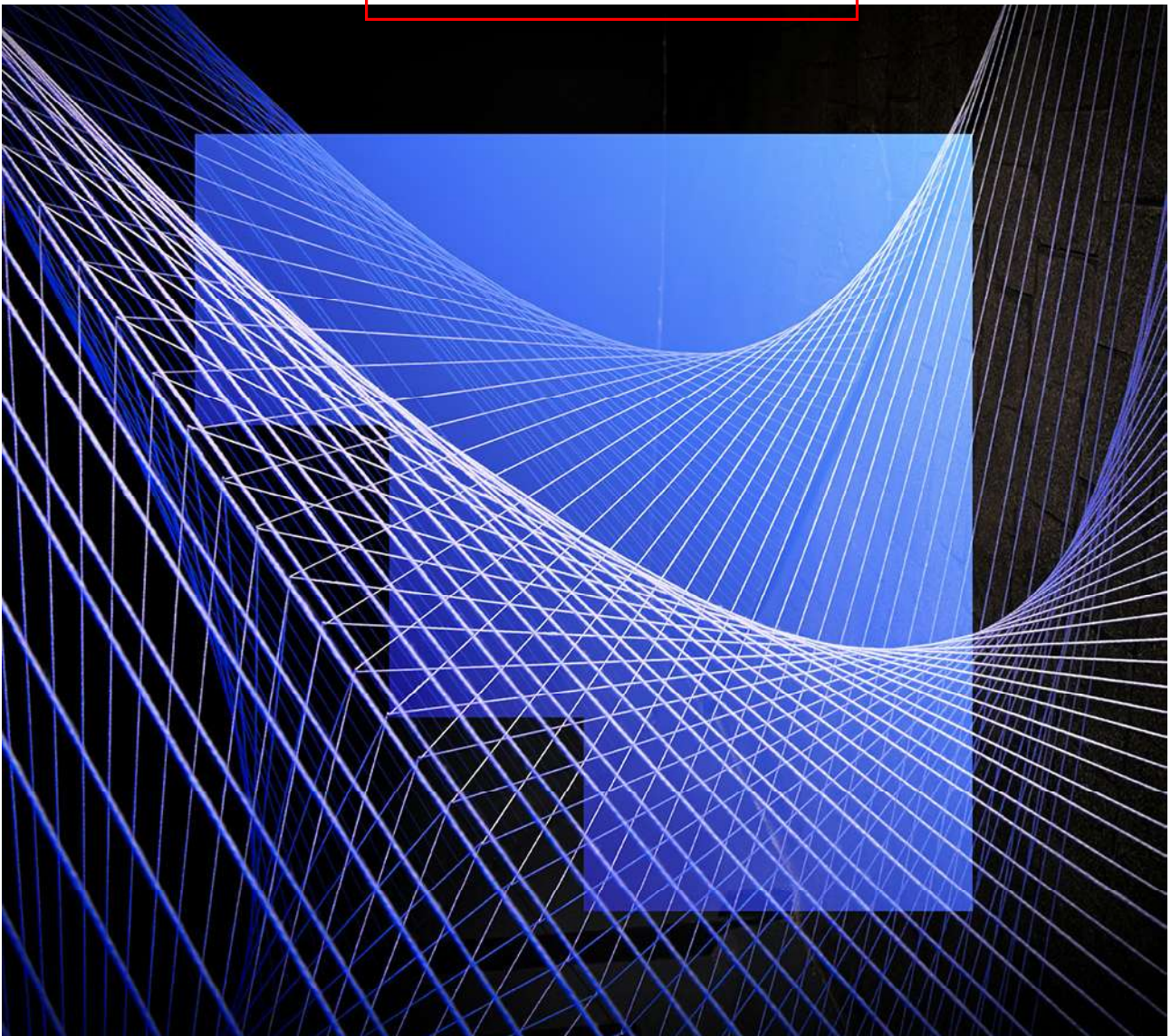
## Sustainability Management Plan

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Date: 23.01.2026

Project Reference: LCE102744

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## DOCUMENT ISSUE REGISTER

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| 01       | Town Planning Submission | 23.01.2026  | AB     | TH       |
|          |                          |             |        |          |

## DOCUMENT DETAILS

PROJECT Penola Catholic College, Glenroy

PROJECT NO LCE102744

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## 1. Introduction

### 1.1 Purpose

This Sustainability Management Plan (SMP) provides an overview of the Penola Catholic College, Glenroy, Stage 1 project.

The SMP presents the sustainability features that will be incorporated into the project to achieve the Merri-bek Planning Scheme objectives relating to environmentally sustainable design (ESD) in particular:

- 15.01-2L-05 Environmentally Sustainable Development
- 53.18 Stormwater Management in Urban Development

The project has been developed to achieve a score of at least 50% against the Built Environment Sustainability Scorecard (BESS) in accordance with 15.01-2L-05 Environmentally Sustainable Development.

### 1.2 Overview

Penola Catholic College is seeking a holistic sustainability outcome, which will be demonstrated through the achievement of 50% BESS score. The development will focus its environmental performance on the following:

- **Fossil-fuel free** –All-electric development, solar PV installation on the roof.
- **Enhanced occupant health and wellbeing outcomes** – HVAC designed to increase outdoor air supply, promotion of natural daylight, high quality LED lighting to support visual comfort, low emissions interior finishes, optimised building fabric to support thermal comfort.
- **Energy Efficiency** - optimised building fabric performance that exceeds minimum NCC requirements to reduce HVAC demand. Shading used.
- **Water conservation and stormwater quality** – efficient water fixtures and fittings to reduce potable water consumption, improved water-sensitive urban design.
- **Enhanced urban ecology** – considered landscape design to support biodiversity.
- **Waste minimisation** – support resident waste management and target high recycling rates for construction and demolition waste.
- **Sustainable transport** - access to public transport and infrastructure to encourage walkability.

### 1.3 Limitations

This document has been prepared based on information provided to Lucid and represents our understanding of the intended design of the project.

It is not to be used for any purpose other than expressly stated within the document. It is not to be used for any other project.

It was prepared for our client and is not to be relied upon by any third party.

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## 2. Project Information

### 2.1 Description of Development

Stage 1 of the Penola College, Glenroy involves the major extension and refurbishment of the Aikenhead Building to create specialist learning areas for arts, design & technology and media subjects.

The table below provides further details regarding elements of the development.

Table 3 Project Details

|                        |   |
|------------------------|---|
| <b>Address</b>         | 35 Williams Street, Glenroy   |
| <b>Description</b>     | Aikenhead Building Extension & Refurbishment<br>Partial demolition and reconstruction of the ground floor<br>Construction of the first floor<br>Refurbishment of Building Exterior<br>Solar PV arrays on roof<br>Associated landscaping works |
| <b>Municipality</b>    | Maree Regional Council  |
| <b>Classifications</b> | Class 9b  |
| <b>GFA</b>             | 1302 m <sup>2</sup>   |
| <b>Site Area</b>       | 1100 m <sup>2</sup>   |

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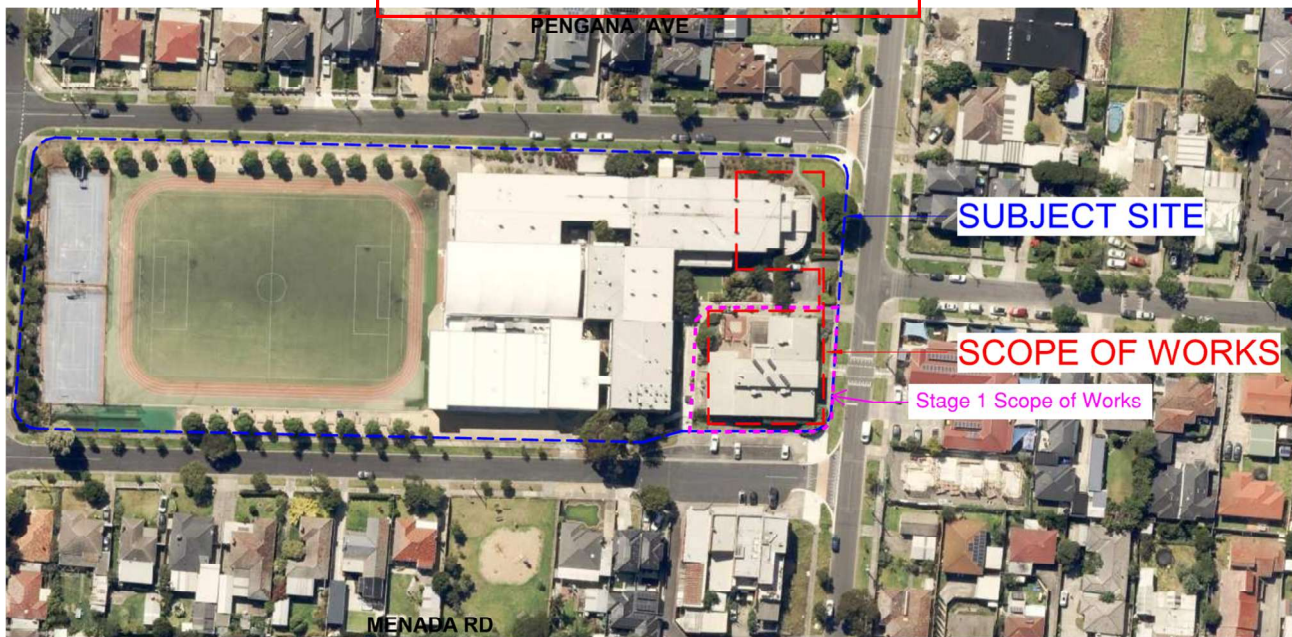


Figure 1: Aerial image of project site/location.

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## 3. Regulatory Requirements

### 3.1 Merri-Bek Planning Requirements

Hobsons Bay Planning Scheme Clause 15.01-2L-05 – Environmentally Sustainable Development requires the development to demonstrate "best practice in environmentally sustainable development".

Clause 15.01-2L-05 includes specific objectives under the following sustainability categories:

- Energy performance;
- Integrated water management;
- Indoor environment quality;
- Transport;
- Waste management; and
- Urban ecology.

Further, under this clause, a non-residential development with a gross floor area more than 1000m<sup>2</sup> is required to prepare a Sustainability Management Plan.

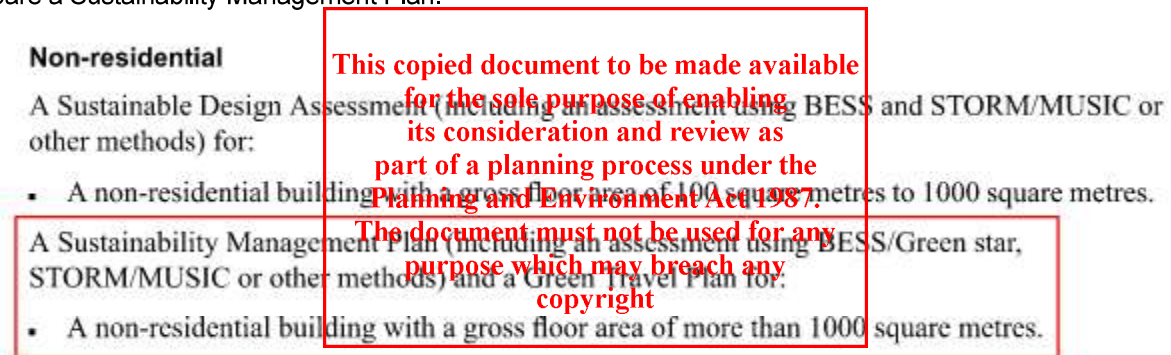


Figure 2: Extract from planning scheme

The Council's Planning Scheme requires the use of relevant ESD tools to assess the proposed development. For this project, the following tool has been used:

- Built Environment Sustainability Scorecard (BESS) – Buildings v10

#### 3.1.1 Built Environment Sustainability Scorecard (BESS)

To achieve the minimum required BESS score, the project must meet the following requirements:

- Receive an overall score of 50% or higher.
- Meet minimum scores for the following categories:
  - Operational Energy (minimum 50%)
  - Indoor Environment Quality (minimum 50%)
- Achieve the following mandatory credits:
  - Integrated Water Management – Potable Water Use (achieve a minimum reduction of 25%)
  - Integrated Water Management – Stormwater Treatment (achieve a maximum of 80 ppm for total suspended solids, 45 ppm for total phosphorus and 45 ppm for total nitrogen)
  - Indoor Environment Quality – Daylight Access – Non-Residential (achieve a minimum score of 33%)



- Indoor Environmental Quality – Ventilation – Non-Residential (achieve a minimum score of 33%)

### **3.1.2 53.18 Stormwater Management in Urban Development**

This SMP incorporates initiatives to ensure that the council’s sustainability requirements are satisfied by addressing the sustainable development categories identified.

Additionally, Planning Scheme Clause 53.18 – Stormwater Management in Urban Development, requires any new development to achieve the best practice water quality performance objectives set out in the Urban Stormwater - Best Practice Environmental Management Guidelines (Victorian Stormwater Committee, 1999).

Currently, these water quality performance objectives are:

- 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

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## 4. Sustainability Strategy

The Sustainability Strategy presented in this Section of SMP responds directly to the Merri-bek Planning Scheme Clause 15.01-2L-05 Environmentally Sustainable Development.

The following section outlines the sustainability features and initiatives that are proposed for Penola Catholic College project. Under each objective outlined in the Planning Scheme we have set out the project’s sustainability design response (including BESS related initiatives) and the associated chain of custody, where applicable to ensure that these initiatives are delivered in construction and operation.

Please see Appendix A for BESS report.

### 4.1 Energy Performance

#### 4.1.1 Objectives

Reduce both energy use and energy peak demand through design measures such as:

Building orientation,

Shading to glazed surfaces,

Optimising glazing to exposed surfaces,

Inclusion of or space allocation for renewable technologies.

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#### 4.1.2 Development Response

The building has been designed to ensure that energy efficiency is a priority and that associated greenhouse gas emissions are minimised.

| Sustainability Initiative | Description  | Chain of Custody  |
|---------------------------|--|-------------------|
| Building Envelope         | Thermal fabric will be enhanced beyond Section J minimum requirements by at least 10% to support energy efficiency (reducing GHG emissions), thermal comfort of occupants and improve the building’s resilience in response to a changing climate. A preliminary facade assessment will be undertaken in accordance with NCC2022 Section J Part J4 (refer to Appendix B for Preliminary Section J Markup). | Architect         |
| Fossil Fuel Free          | The development will be an all-electric building with no gas supply.   | Services Engineer |
| Artificial Lighting       | Efficient LED artificial lighting will be provided across the development.   | Services Engineer |
| HVAC                      | High efficiency VRF heating and cooling will be provided to occupied areas of the building. Heating and cooling systems will be within one Star of the most efficient equivalent capacity unit available.  | Services Engineer |

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|                    |  |                               |
|--------------------|--|-------------------------------|
|                    | OR<br>Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available. |                               |
| Domestic Hot Water | Efficient heat pump hot water units will provide domestic hot water.   | Services Engineer             |
| Energy Metering    | All major systems will be individually sub-metered to allow for effective building monitoring.   | Services Engineer             |
| Solar PV           | Roof space has been allocated to support the integration of a 15kW solar photovoltaic system. This will be explored during the subsequent design phase.              | Architect / Services Engineer |

## 4.2 Integrated Water Management

### 4.2.1 Objectives

Reduce total operating potable water use through appropriate design measures such as water efficient fixtures, appliances, equipment, and landscaping.

Incorporate best practice water sensitive urban design to improve the quality of stormwater runoff and reduce impacts on water systems and water bodies.

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### 4.2.2 Development Response

| Sustainability Initiative | Description   | Chain of Custody |
|---------------------------|---|------------------|
| Stormwater Profile        | <p>Post-development peak discharge will not exceed the pre-development peak discharge rate.</p> <p>Stormwater leaving the site will meet Urban Stormwater- Best Practice Environmental Management Guidelines pollution reduction targets.</p> <p>Please refer to WSUD Assessment for further details.</p> <p>Stormwater quality must meet the following pollutant reduction targets.</p> <ul style="list-style-type: none"> <li>Suspended Solids – 80% retention of typical urban annual load</li> <li>Total Nitrogen – 45% retention of typical urban annual load</li> <li>Total Phosphorus – 45% retention of typical urban annual load</li> <li>Litter – 70% reduction of typical urban annual load</li> </ul> | Civil Engineer   |

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|                                 |  |                     |
|---------------------------------|--|---------------------|
| Efficient Fixtures and Fittings | The following Water Efficiency Labelling Scheme (WELS) star ratings will be specified:<br>WC: 4 star (3/4.5L/flush)<br>Kitchen & Basin Tap: 5 star (5L/min)<br>The development will consume at least 25% less potable water compared to the BESS reference case. | Architect           |
| Water Efficient Landscaping     | Water efficient landscaping will be installed to reduce water consumption in gardens. Landscaping to be water efficient garden and have no irrigation system and not require watering after an initial period when plants are getting established.               | Landscape Architect |
| Water Metering                  | Water meter will be provided for incoming supply for potable water.  | Services Engineer   |

## 4.3 Indoor Environment Quality

### 4.3.1 Objectives

- Achieve a healthy indoor environment quality, including thermal comfort and access to fresh air and daylight, prioritising passive design over mechanical heating, ventilation, cooling and lighting.
- Reduce indoor air pollutants by encouraging the use of low-toxicity materials.
- Minimise noise levels and noise transfer within and between buildings and associated external areas.

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### 4.3.2 Development Response

| Sustainability Initiative | Description   | Chain of Custody             |
|---------------------------|---|------------------------------|
| Daylight Access           | 33% of the nominated floor area has at least a 2% daylight factor. Daylight modelling software or daylight calculations must be completed, assuming a uniform design sky of 10,000 lux (refer to Appendix C for Preliminary Daylight Assessment).   | Architect                    |
| Ventilation               | A 50% increase in outdoor air is available in the regular use areas, compared to the minimum required by AS 1668.2:2012.<br>The ventilation systems are designed to maintain CO2 concentrations of a maximum of 800ppm. CO2 levels are continuously monitored within the building.<br>Ventilation system outside air intakes will meet best practice separation distances from pollutant sources. | Architect/ Services Engineer |

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|                          |   |                              |
|--------------------------|---|------------------------------|
|                          | All ductwork will be cleaned prior to occupation in accordance with a recognised standard.<br>Kitchen exhaust (if applicable) will be direct to outside.  |                              |
| Shading                  | At least 75% of the glazing to the regular use areas on the north, east and west facades is effectively shaded.   | Architect                    |
| Air Quality              | All paints, sealants and adhesives meet the maximum total indoor pollutant emission limits in accordance with Green Star.<br>All carpet meets the maximum total indoor pollutant emission limits accordance with Green Star.<br>All engineered wood meet the maximum total indoor pollutant emission limits accordance with Green Star.<br>Other accepted standards include meeting current GECA, Global GreenTag GreenRate, Carpet Institute Australia Environmental Classification Scheme Level 2, WELL standards for TVOC in paints, adhesives and sealants, carpet and Formaldehyde in engineered wood. | Architect/ Services Engineer |
| Artificial Light Quality | All lighting to be high-quality LED with a Colour Rendering Index (CRI) of ≥85, flicker-free, and glare from light sources will be managed.<br>Lighting to provide best practice illumination levels per AS/NZS 1680.2:2006 and uniformity no less than Table 3.2 AS/NZS 1680.2:2006 with a maintenance factor method defined in AS1680.4.  | Services Engineer            |
| Acoustic Comfort         | Minimise noise levels and noise transfer within and between buildings and associated external areas.  | Acoustics/ Architect         |

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## 4.4 Transport

### 4.4.1 Objectives

*Design development to promote the use of walking, cycling and public transport to minimise car dependency.*

### 4.4.2 Development Response

| Sustainability Initiative | Description              | Chain of Custody |
|---------------------------|--------------------------|------------------|
| Sustainable Transport     | <u>Public Transport:</u> | NA               |

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|                       |   |           |
|-----------------------|---|-----------|
|                       | The school is located between Jacana and Broadmeadows train stations.<br>To the north of the school, along Camp Rd (approx. 400m from the school) there is a bus service (902). |           |
| Encourage Walkability | Stairs are incorporated into the scheme and prominently located to promote physical activity over lift use.   | Architect |
| Bicycle Storage       | We understand that there is an existing bike storage on the school campus, which would also serve the new building. No additional parking proposed.                             | NA        |
| Carparking            | There are no new car parking spaces proposed within the scope of project.   | NA        |

## 4.5 Waste Management

### 4.5.1 Objectives

Promote waste avoidance, reuse and recycling during the design, construction, and operation stages of development.

Encourage use of durable and reusable building materials.

Ensure sufficient space is allocated for future change in waste management needs.

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### 4.5.2 Development Response

| Sustainability Initiative                        | Description  | Chain of Custody           |
|--|--|----------------------------|
| Building Re-Use                                  | At least 30% of the existing building has been re-used in the site redevelopment.<br>We note that the ground floor will be retained and undergo a fit-out reconfiguration. | Architect/ Contractor      |
| Convenience of Recycling                         | On-site recycling bins and facilities must be at least as convenient for occupants as bins and facilities for general waste.   | Architect                  |
| Future Provisions for Waste Management Extension | Ensure sufficient space is allocated for future change in waste management needs.  | Waste Management/Architect |
| Construction and Demolition Waste Diversion      | The contractor will divert at least 80% of all demolition and construction waste from landfill.  | Contractor                 |
| Building Materials and End-of-Life Waste         | The project will prioritise the use of durable and reusable building materials where possible.   | Architect                  |

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## 4.6 Urban Ecology

Protect and enhance biodiversity by incorporating natural habitats and planting indigenous vegetation.

Reduce urban heat island effects through building design, landscape design, water sensitive urban design and the retention and provision of canopy and significant trees.

Encourage the provision of space for productive gardens, particularly in larger residential developments.

### 4.6.1 Development Response

| Sustainability Initiative | Description   | Chain of Custody        |
|---------------------------|---|-------------------------|
| Vegetation                | 5% or more of the total site area is covered with vegetation.   | Landscape Architect     |
| Plant Selection           | Locally indigenous plant species will be prioritised in the landscaping design.   | Landscape Architect     |
| Urban Heat Island         | 75% of total site area will comprise landscaping or roofs and hardscaping with SRI compliant finishes to minimise contribution to urban heat island. Roof colour will meet the year SRI for at least 64 or initial SRI for at least 82. | Architect/<br>Landscape |

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## 5. Additional Sustainability Initiatives

The following sustainability features are additional sustainability measures, beyond the categories/objectives referenced in Merri-bek Planning Scheme Clause 15.01-21-05 Environmentally Sustainable Development.

### 5.1.1 Development Response

| Sustainability Initiative  | Description  | Chain of Custody          |
|----------------------------|--|---------------------------|
| Pre-Application Meeting    | An ESD professional will be engaged to provide sustainability advice from schematic design to construction.<br>An ESD professional will be involved in a pre-application meeting with Council.   | ESD Consultant/ Architect |
| Responsibly Sourced Timber | Timber that is responsibly sourced such as Forestry Stewardship Council (FSC) certified timbers or equivalent to be prioritised where possible.<br>Locally sourced and plantation timbers are preferred to those sourced from old growth forest and from distant locations where ecosystems may be under threat or poorly managed. | Architect                 |



|                       |   |            |
|-----------------------|---|------------|
| Contractor Management | Project Head Contractor is to have a formalised Environmental Management System (EMS) (e.g. AS/NZS ISO 14001) | Contractor |
|-----------------------|---|------------|

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## Appendix A – BESS Report

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BESS, Penola Catholic College 35 William St, Glenroy 3046

# BESS Report

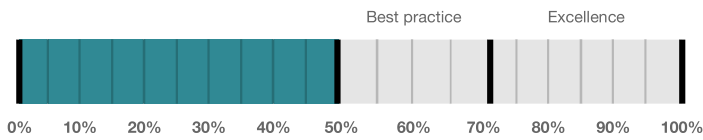
Built Environment Sustainability Scorecard



This BESS report outlines the sustainable design commitments of the proposed development at 35 William St 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.

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



# 52%

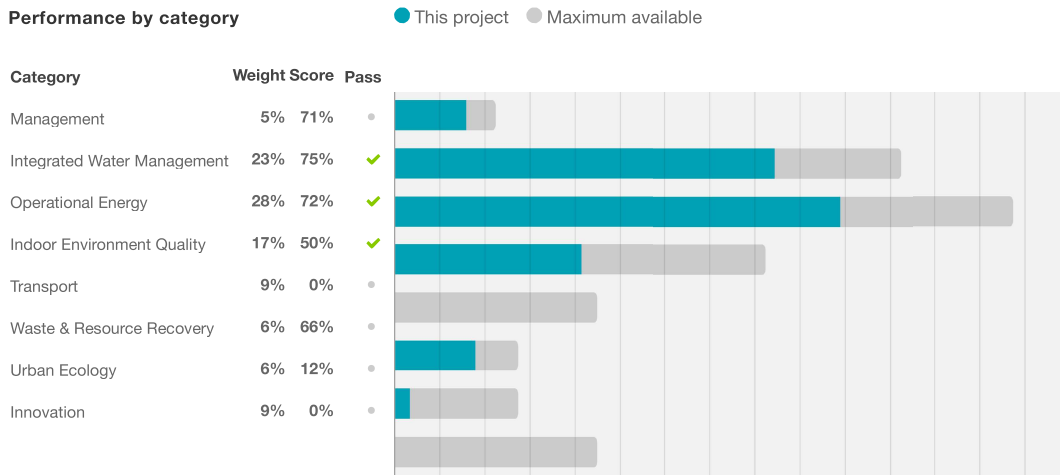
## Project details

**Name** Penola Catholic College  
**Address** 35 William St Glenroy Victoria 3046  
**Project ID** 932126CB-R1  
**BESS Version** BESS-10

**Site type** Non-residential development  
**Account** alex.brodie@lucidconsulting.com.au  
**Application no.**  
**Site area** 1,100 m<sup>2</sup>  
**Building floor area** 1,319 m<sup>2</sup>  
**Date** 23 January 2026  
**Software version** 2.3.0-B.645



## Performance by category



The Built Environment Sustainability Scorecard is an initiative of the Council Alliance for a Sustainable Built Environment (CASBE). For more details see [www.bess.net.au](http://www.bess.net.au)

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## Buildings

| Name       | Height | Footprint          | % of total footprint |
|------------|--------|--------------------|----------------------|
| Building 1 | 2      | 698 m <sup>2</sup> | 100%                 |

## Dwellings & Non Res Spaces

### Non-Res Spaces

| Name                    | Quantity | Area                       | Building    | % of total area |
|-------------------------|----------|----------------------------|-------------|-----------------|
| <b>Public building</b>  |          |                            |             |                 |
| Non-Residential Space 1 | 1        | 1,319 m <sup>2</sup>       | Building 1  | 100%            |
| <b>Total</b>            | <b>1</b> | <b>1,319 m<sup>2</sup></b> | <b>100%</b> |                 |

## Supporting Evidence

### Shown on Floor Plans

| Credit                          | Requirement   | Response   | Status |
|---------------------------------|---|--|--------|
| Management 3.3                  | Annotation: Sub-meters to be provided to all major common area services (list each)         | To be printed<br>An annotation providing information on sub-metering will be provided on electrical drawings at a later stage of the design. | ✓      |
| Integrated Water Management 2.1 | Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips) | To be printed<br>Refer to civil drawings.  | ✓      |
| Integrated Water Management 3.1 | Annotation: Water efficient garden details  | To be printed<br>Refer to landscaping drawings.  | ✓      |
| Waste & Resource Recovery 2.2   | Location of recycling facilities  | To be printed<br>Refer to architectural drawings.  | ✓      |
| Urban Ecology 2.1               | Location and size of vegetated areas  | To be printed<br>Refer to landscaping drawings.  | ✓      |

### Supporting Documentation

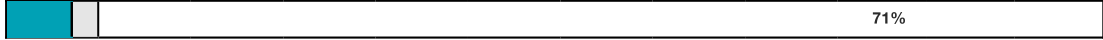





| Credit                          | Requirement   | Response  | Status |
|---------------------------------|---|---|--------|
| Management 2.3a                 | Section J glazing assessment  | To be printed<br>Refer to Appendix B - Section J Markup of Sustainability Management Plan | ✓      |
| Integrated Water Management 2.1 | STORM report or MUSIC model   | To be printed<br>Refer to Civil Documentation   | ✓      |
| Operational Energy 1.1          | Energy Report showing calculations of reference case and proposed buildings | To be printed<br>Refer to Appendix B - Section J Markup of Sustainability Management Plan | ✓      |
| Operational Energy 3.7          | Average lighting power density and lighting type(s) to be used              | To be printed<br>Electrical engineer to incorporate in design                             | ✓      |

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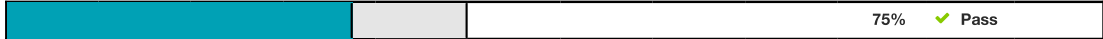

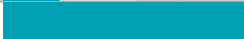


| Credit                         | Requirement   | Response  | Status |
|--------------------------------|---|---|--------|
| Indoor Environment Quality 1.4 | A short report detailing assumptions used and results achieved.     | To be printed<br>Refer to Sustainability Management Plan Appendix C - Preliminary Daylight Assessment | ✓      |
| Waste & Resource Recovery 1.1  | Details regarding how the existing building is being reused on-site | To be printed<br>Refer to architectural drawings.   | ✓      |

### Credit summary

#### Management Overall contribution 4.5%

| Requirement   | Progress   | Percentage | Notes        |
|---|--|------------|--------------|
| <b>Management Overall contribution 4.5%</b>         |  |            |              |
|   |  | 71%        |              |
| 1.1 Pre-Application Meeting                         |  | 100%       |              |
| 2.3 Thermal Performance Modelling - Non-Residential |   | 50%        |              |
| 3.2 Metering - Non-Residential                      |   | N/A        | ✦ Scoped Out |
| No commercial tenants proposed.                     |  |            |              |
| 3.3 Metering - Common Areas                         |   | 100%       |              |
| 4.1 Building Users Guide                            |   | 0%         |              |

#### IWM Overall contribution 22.5%

| Requirement                           | Progress   | Percentage | Status     |
|---------------------------------------|--|------------|------------|
| <b>IWM Overall contribution 22.5%</b> |  |            |            |
|                                       |  | 75%        | ✓ Pass     |
| 1.1 Potable Water Use                 |   | 42%        | ✓ Achieved |
| 2.1 Stormwater Treatment              |  | 100%       | ✓ Achieved |
| 3.1 Water Efficient Landscaping       |   | 100%       |            |
| 4.1 Building Systems Water Use        |   | 0%         |            |

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BESS, Penola Catholic College 35 William St, Glenroy 3046

**Operational Energy Overall contribution 27.5%**

|  |  | Minimum required 50% | 72%  | ✔ Pass  |
|--|--|----------------------|------|---|
|  |  |                      |      |   |
| 1.1 Thermal Performance Rating - Non-Residential           |  |                      | 37%  |   |
| 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  |
|  |  |                      |      | not included in project                             |
| 3.2 Hot Water - Non-Residential                            |  |                      | 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. |

**IEQ Overall contribution 16.5%**

|  |  | Minimum required 50% | 50%  | ✔ Pass     |
|--|--|----------------------|------|------------|
|  |  |                      |      |            |
| 1.4 Daylight Access - Non-Residential                |  |                      | 33%  | ✔ Achieved |
| 2.3 Ventilation - Non-Residential                    |  |                      | 50%  | ✔ Achieved |
| 3.4 Thermal comfort - Shading - Non-Residential      |  |                      | 83%  |            |
| 3.5 Thermal Comfort - Ceiling Fans - Non-Residential |  |                      | 0%   |            |
| 4.1 Air Quality - Non-Residential                    |  |                      | 100% |            |

**Transport Overall contribution 9.0%**

|   |  | 0% |                                    |
|---|--|----|------------------------------------|
|   |  |    |                                    |
| 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% |                                    |
| 2.2 Car Share Scheme                          |  | 0% |                                    |
| 2.3 Motorbikes / Mopeds                       |  | 0% |                                    |

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**Waste & Resource Recovery Overall contribution 5.5%**

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

**Urban Ecology Overall contribution 5.5%**

|                                       |  |            |
|---------------------------------------|--|------------|
|                                       |  | <b>12%</b> |
| 1.1 Communal Spaces                   |  | 0%         |
| 2.1 Vegetation                        |  | 25%        |
| 2.2 Green Roofs                       |  | 0%         |
| 2.3 Green Walls and Facades           |  | 0%         |
| 3.2 Food Production - Non-Residential |  | 0%         |

**Innovation Overall contribution 9.0%**

|                |  |           |
|----------------|--|-----------|
|                |  | <b>0%</b> |
| 1.1 Innovation |  | 0%        |

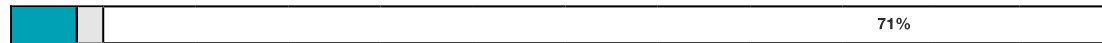
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### Credit breakdown

#### Management Overall contribution 4.5%



|  |  |  |
|--|--|--|
| <b>1.1 Pre-Application Meeting</b>                         |  | 100%   |
| Score Contribution   | This credit contributes 42.9% towards the category score.  |  |
| Criteria   | Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council? |  |
| Question   | Criteria Achieved ?  |  |
| Project  | Yes  |  |
| <b>2.3 Thermal Performance Modelling - Non-Residential</b> |  | 50%  |
| Score Contribution   | This credit contributes 28.6% towards the category score.  |  |
| Criteria   | Has a preliminary facade assessment been undertaken in accordance with NCC2022 Section J4D6?   |  |
| Question   | Criteria Achieved ?  |  |
| Public building  | Yes  |  |
| Criteria   | Has preliminary modelling been undertaken in accordance with either NCC2022 Section J (Energy Efficiency), NABERS or Green Star?   |  |
| Question   | Criteria Achieved ?  |  |
| Public building  | No   |  |
| <b>3.2 Metering - Non-Residential</b>                      |  | N/A <span style="color: orange;">✦</span> Scoped Out |
| No commercial tenants proposed.                            |  |  |
| This credit was scoped out                                 | No commercial tenants proposed.  |  |
| <b>3.3 Metering - Common Areas</b>                         |  | 100%   |
| Score Contribution   | This credit contributes 14.3% towards the category score.  |  |
| Criteria   | Have all major common area services been separately submetered?  |  |
| Question   | Criteria Achieved ?  |  |
| Public building  | Yes  |  |
| <b>4.1 Building Users Guide</b>                            |  | 0%   |
| Score Contribution   | This credit contributes 14.3% towards the category score.  |  |
| Criteria   | Will a building users guide be produced and issued to occupants?   |  |
| Question   | Criteria Achieved ?  |  |
| Project  | No   |  |

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BESS, Penola Catholic College 35 William St, Glenroy 3046

**IWM Overall contribution 22.5%**

|  |  |   |
|--|--|---|
|  |  | 75% <span style="color: green;">✔</span> Pass |
|--|--|---|

|   |    |
|---|----|
| Do you have a reticulated third pipe or an on-site water recycling system?: | No |
| Are you installing a swimming pool?:  | No |

|   |                                   |
|---|-----------------------------------|
| <b>Stormwater profile</b>                           |                                   |
| Which stormwater modelling software are you using?: | MUSIC or other modelling software |
| Blue Factor score achieved?:                        | -                                 |
| Flow:   | 0 %                               |
| Total Suspended Solids:                             | 80 %                              |
| Total Phosphorus:                                   | 45 %                              |
| Total Nitrogen:                                     | 45 %                              |

|  |                       |
|--|-----------------------|
| <b>Fixtures, fittings &amp; connections profile</b>              |                       |
| Building:  | Building 1            |
| Showerhead:  | Scope out             |
| Bath:  | Scope out             |
| Kitchen Taps:  | >= 5 Star WELS rating |
| Bathroom Taps:   | >= 5 Star WELS rating |
| Dishwashers:   | Scope out             |
| WC:  | >= 4 Star WELS rating |
| Urinals:   | Scope out             |
| Washing Machine Water Efficiency:                                | Scope out             |
| Non-potable water source connected to Toilets:                   | No                    |
| Non-potable water source connected to Laundry (washing machine): | No                    |
| Non-potable water source connected to Hot Water System:          | No                    |

|                              |  |     |   |
|------------------------------|--|-----|---|
| <b>1.1 Potable Water Use</b> |  | 42% | <span style="color: green;">✔</span> Achieved |
|------------------------------|--|-----|---|

|                    |  |
|--------------------|--|
| Score Contribution | This credit contributes 31.2% 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            | 2262 kL  |
| Output             | Proposed (excluding rainwater and recycled water use)  |
| Project            | 1660 kL  |
| Output             | Proposed (including rainwater and recycled water use)  |
| Project            | 1660 kL  |
| Output             | % Reduction in Potable Water Consumption   |
| Project            | 26 %   |

|                                 |  |      |   |
|---------------------------------|--|------|---|
| <b>2.1 Stormwater Treatment</b> |  | 100% | <span style="color: green;">✔</span> Achieved |
|---------------------------------|--|------|---|

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|  |   |      |
|--|---|------|
| Score Contribution                     | This credit contributes 56.2% towards the category score.   |      |
| Criteria                               | Has best practice stormwater management been demonstrated?  |      |
| Output                                 | Flow  |      |
| Project                                | 0 %   |      |
| Output                                 | Min Suspended Solids reduction  |      |
| Project                                | 80 %  |      |
| Output                                 | Total Suspended Solids reduction  |      |
| Project                                | 80 %  |      |
| Output                                 | Min Phosphorus reduction  |      |
| Project                                | 45 %  |      |
| Output                                 | Total Phosphorus reduction  |      |
| Project                                | 45 %  |      |
| Output                                 | Min Nitrogen reduction  |      |
| Project                                | 45 %  |      |
| Output                                 | Total Nitrogen reduction  |      |
| Project                                | 45 %  |      |
| <b>3.1 Water Efficient Landscaping</b> |   | 100% |
| Score Contribution                     | This credit contributes 6.2% towards the category score.  |      |
| Criteria                               | Will water efficient landscaping be installed?  |      |
| Question                               | Criteria Achieved ?   |      |
| Project                                | Yes   |      |
| <b>4.1 Building Systems Water Use</b>  |   | 0%   |
| Score Contribution                     | This credit contributes 6.2% towards the category score.  |      |
| Criteria                               | Where applicable, have measures been taken to reduce potable water consumption by >80% in the buildings air-conditioning chillers and when testing fire safety systems? |      |
| Question                               | Criteria Achieved ?   |      |
| Project                                | No  |      |

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BESS, Penola Catholic College 35 William St, Glenroy 3046

**Operational Energy Overall contribution 27.5%**

|  |                      |     |        |
|--|----------------------|-----|--------|
|  | Minimum required 50% | 72% | ✔ Pass |
|--|----------------------|-----|--------|

|  |   |
|--|---|
| <b>Project profile</b>   |   |
| Use the BESS Deem to Satisfy (DtS) method for Non-residential spaces?:   | Yes   |
| Are you installing any renewable energy system(s) (other than solar photovoltaic)?:  | No  |
| Energy Supply:   | All-electric  |
| <b>Non-residential Deemed-to-Satisfy profile</b>   |   |
| Do all exposed floors and ceilings (forming part of the envelope) demonstrate a minimum 10% improvement in 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   |
| <b>1.1 Thermal Performance Rating - Non-Residential</b>  | 37%   |
| Score Contribution   | This credit contributes 36.4% towards the category score.   |
| Criteria   | What is the % reduction in heating and cooling energy consumption against the reference case (NCC2022 Section J)? |
| <b>2.1 Greenhouse Gas Emissions</b>  | 100%  |
| Score Contribution   | This credit contributes 9.1% 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 4.5% towards the category score.  |
| Criteria   | What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?                            |
| <b>2.6 Electrification</b>   | 100%  |
| Score Contribution   | This credit contributes 13.6% towards the category score.   |
| Criteria   | Is the development all-electric?  |
| Question   | Criteria Achieved?  |
| Project  | Yes   |
| <b>2.7 Energy consumption</b>  | 100%  |

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|   |   |  |
|---|---|--|
| Score Contribution  | This credit contributes 18.2% towards the category score.   |  |
| Criteria  | What is the % reduction in annual energy consumption against the benchmark?   |  |
| <b>3.1 Carpark Ventilation</b>                                    |    | N/A  Scoped Out   |
|   | not included in project   |  |
| This credit was scoped out  | not included in project   |  |
| <b>3.2 Hot Water - Non-Residential</b>                            |    | 100%   |
| Score Contribution  | This credit contributes 4.5% towards the category score.  |  |
| Criteria  | What is the % reduction in annual energy consumption (gas and electricity) of the hot water system against the benchmark?   |  |
| <b>3.7 Internal Lighting - Non-Residential</b>                    |    | 100%   |
| Score Contribution  | This credit contributes 9.1% 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 J7D3a of the NCC 2022 Vol 1? |  |
| Question  | Criteria Achieved ?   |  |
| Public building   | Yes   |  |
| <b>4.1 Combined Heat and Power (cogeneration / trigeneration)</b> |    | N/A  Scoped Out   |
|   | No cogeneration or trigeneration system in use.   |  |
| This credit was scoped out  | No cogeneration or trigeneration system in use.   |  |
| <b>4.2 Renewable Energy Systems - Solar</b>                       |    | 0%  Disabled    |
|   | No solar PV renewable energy is in use.   |  |
| This credit is disabled   | No solar PV renewable energy is in use.   |  |
| <b>4.4 Renewable Energy Systems - Other</b>                       |    | N/A  Scoped Out |
|   | No other (non-solar PV) renewable energy is in use.   |  |
| This credit was scoped out  | No other (non-solar PV) renewable energy is in use.   |  |

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BESS, Penola Catholic College 35 William St, Glenroy 3046

**IEQ Overall contribution 16.5%**

|  |  |                             |  |
|--|--|-----------------------------|--|
|  |  | <b>Minimum required 50%</b> | <b>50% <span style="color: green;">✔</span> Pass</b> |
|--|--|-----------------------------|--|

|  |            |  |
|--|------------|--|
| <b>1.4 Daylight Access - Non-Residential</b> | <b>33%</b> | <b><span style="color: green;">✔</span> Achieved</b> |
|--|------------|--|

|                    |   |
|--------------------|---|
| 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?  |
| Public building    | 33 %  |

|  |            |  |
|--|------------|--|
| <b>2.3 Ventilation - Non-Residential</b> | <b>50%</b> | <b><span style="color: green;">✔</span> Achieved</b> |
|--|------------|--|

|                    |   |
|--------------------|---|
| Score Contribution | This credit contributes 35.3% towards the category score.             |
| Criteria           | What % of the regular use areas are effectively naturally ventilated? |
| Question           | Percentage Achieved?  |
| Public building    | 0 %   |

|                 |  |
|-----------------|--|
| Criteria        | What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668.2:2012? |
| Question        | Percentage Achieved?   |
| Public building | 50 %   |

|                 |  |
|-----------------|--|
| Criteria        | What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain? |
| Question        | Value  |
| Public building | 800 ppm  |

|  |            |  |
|--|------------|--|
| <b>3.4 Thermal comfort - Shading - Non-Residential</b> | <b>83%</b> |  |
|--|------------|--|

|                    |   |
|--------------------|---|
| Score Contribution | This credit contributes 17.6% towards the category score.                                   |
| Criteria           | What percentage of east, north and west glazing to regular use areas is effectively shaded? |
| Question           | Percentage Achieved?  |
| Public building    | 75 %  |

|   |           |  |
|---|-----------|--|
| <b>3.5 Thermal Comfort - Ceiling Fans - Non-Residential</b> | <b>0%</b> |  |
|---|-----------|--|

|                    |  |
|--------------------|--|
| Score Contribution | This credit contributes 5.9% towards the category score.             |
| Criteria           | What percentage of regular use areas in tenancies have ceiling fans? |
| Question           | Percentage Achieved?   |
| Public building    | 0 %  |

|  |             |  |
|--|-------------|--|
| <b>4.1 Air Quality - Non-Residential</b> | <b>100%</b> |  |
|--|-------------|--|

|                    |  |
|--------------------|--|
| Score Contribution | This credit contributes 5.9% towards the category score. |
|--------------------|--|

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|                 |  |
|-----------------|--|
| Criteria        | Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits? |
| Question        | Criteria Achieved ?  |
| Public building | Yes  |
| Criteria        | Does all carpet meet the maximum total indoor pollutant emission limits?                       |
| Question        | Criteria Achieved ?  |
| Public building | Yes  |
| Criteria        | Does all engineered wood meet the maximum total indoor pollutant emission limits?              |
| Question        | Criteria Achieved ?  |
| Public building | Yes  |

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BESS, Penola Catholic College 35 William St, Glenroy 3046

**Transport Overall contribution 9.0%**

|  |    |
|--|----|
|  | 0% |
|--|----|

|  |   |  |
|--|---|--|
| <b>1.4 Bicycle Parking - Non-Residential</b>         |   | 0%   |
| Score Contribution                                   | This credit contributes 22.2% towards the category score.   |  |
| Criteria   | Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50% (or a minimum of 2 where there is no planning scheme requirement)?               |  |
| Annotation   | At this stage of the design, 0 additional parking spaces have been proposed, although the campus has 10-15 existing parking spaces available to students, which will be retained. |  |
| Question   | Criteria Achieved ?   |  |
| Public building                                      | No  |  |
| Question   | Bicycle Spaces Provided ?   |  |
| Public building                                      | 0   |  |
| <b>1.5 Bicycle Parking - Non-Residential Visitor</b> |   | 0%   |
| Score Contribution                                   | This credit contributes 11.1% towards the category score.   |  |
| Criteria   | Have the planning scheme requirements for visitor bicycle parking been exceeded by at least 50% (or a minimum of 1 where there is no planning scheme requirement)?                |  |
| Question   | Criteria Achieved ?   |  |
| Public building                                      | No  |  |
| Question   | Bicycle Spaces Provided ?   |  |
| Public building                                      | 10  |  |
| <b>1.6 End of Trip Facilities - Non-Residential</b>  |   | 0% <input checked="" type="radio"/> Disabled |
| Credit 1.4 must be complete first.                   |   |  |
| This credit is disabled                              | Credit 1.4 must be complete first.  |  |
| <b>2.1 Electric Vehicle Infrastructure</b>           |   | 0%   |
| Score Contribution                                   | This credit contributes 22.2% towards the category score.   |  |
| Criteria   | Are facilities provided for the charging of electric vehicles?  |  |
| Question   | Criteria Achieved ?   |  |
| Project  | No  |  |
| <b>2.2 Car Share Scheme</b>                          |   | 0%   |
| Score Contribution                                   | This credit contributes 11.1% towards the category score.   |  |
| Criteria   | Has a formal car sharing scheme been integrated into the development?   |  |
| Question   | Criteria Achieved ?   |  |
| Project  | No  |  |
| <b>2.3 Motorbikes / Mopeds</b>                       |   | 0%   |

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|                    |   |
|--------------------|---|
| Score Contribution | This credit contributes 22.2% towards the category score.   |
| Criteria           | Are a minimum of 5% of vehicle parking spaces designed and labelled for motorbikes (must be at least 5 motorbike spaces)? |
| Question           | Criteria Achieved ?   |
| Project            | No  |

**Waste & Resource Recovery Overall contribution 5.5%**



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

|                    |   |
|--------------------|---|
| 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            | Yes   |

**2.1 Operational Waste - Food & Garden Waste** 0%

|                    |  |
|--------------------|--|
| Score Contribution | This credit contributes 33.3% towards the category score.                |
| Criteria           | Are facilities provided for on-site management of food and garden waste? |
| Question           | Criteria Achieved ?  |
| Project            | No   |

**2.2 Operational Waste - Convenience of Recycling** 100%

|                    |  |
|--------------------|--|
| Score Contribution | This credit contributes 33.3% towards the category score.  |
| Criteria           | Are the recycling facilities at least as convenient for occupants as facilities for general waste? |
| Question           | Criteria Achieved ?  |
| Project            | Yes  |

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BESS, Penola Catholic College 35 William St, Glenroy 3046

**Urban Ecology Overall contribution 5.5%**

|  |  |     |
|--|--|-----|
|  |  | 12% |
|--|--|-----|

|  |  |     |
|--|--|-----|
| <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  |     |
| Public building                              | 0.0 m <sup>2</sup>   |     |
| Output                                       | Minimum Common Space Required  |     |
| Public building                              | 90 m <sup>2</sup>  |     |
| <b>2.1 Vegetation</b>                        |  | 25% |
| Score Contribution                           | This credit contributes 50% 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                                      | 5 %  |     |
| <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   |     |
| Public building                              | 0.0 m <sup>2</sup>   |     |
| Output                                       | Min Food Production Area   |     |
| Public building                              | 33 m <sup>2</sup>  |     |

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**Innovation Overall contribution 9.0%**

|  |    |
|--|----|
|  | 0% |
|--|----|

|                       |   |    |
|-----------------------|---|----|
| <b>1.1 Innovation</b> |   | 0% |
| Score Contribution    | This credit contributes 100% towards the category score.                        |    |
| Criteria              | What percentage of the Innovation points have been claimed (10 points maximum)? |    |

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## Appendix B – Preliminary Section J Markup

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**GENERAL ARRANGEMENT PLAN - GE**

**CLASS 9b C26 External Glazing**  
Minimum DIS R-Value: R = 3.2 m<sup>2</sup>K/W  
Target BESS DIS R-Value (10% above min. requirements): R = 3.52 m<sup>2</sup>K/W  
Proposed Solution:  
Concrete slab on ground. No insulation required.

**CLASS 9b C26 Ceiling**  
Minimum DIS R-Value: R = 3.2 m<sup>2</sup>K/W  
Target BESS DIS R-Value (10% above min. requirements): R = 3.52 m<sup>2</sup>K/W  
Proposed Solution:  
PENDING

**CLASS 9b C26 External Glazing**  
Minimum DIS R-Value: R = 3.2 m<sup>2</sup>K/W  
Target BESS DIS R-Value (10% above min. requirements): R = 3.52 m<sup>2</sup>K/W  
Proposed Solution:  
PENDING

**CLASS 9b C26 External Glazing**  
Minimum DIS R-Value: R = 3.2 m<sup>2</sup>K/W  
Target BESS DIS R-Value (10% above min. requirements): R = 3.52 m<sup>2</sup>K/W  
Proposed Solution:  
PENDING

**CLASS 9b C26 External Glazing**  
Minimum DIS R-Value: R = 3.2 m<sup>2</sup>K/W  
Target BESS DIS R-Value (10% above min. requirements): R = 3.52 m<sup>2</sup>K/W  
Proposed Solution:  
PENDING

**CLASS 9b C26 External Glazing**  
Minimum DIS R-Value: R = 3.2 m<sup>2</sup>K/W  
Target BESS DIS R-Value (10% above min. requirements): R = 3.52 m<sup>2</sup>K/W  
Proposed Solution:  
PENDING

**CLASS 9b C26 External Glazing**  
Minimum DIS R-Value: R = 1.4 m<sup>2</sup>K/W  
Target DIS R-Value: R = 1.4 m<sup>2</sup>K/W  
Proposed solution:  
WT01  
110mm brick, 50mm slightly ventilated air cavity, vapour permeable membrane, 92mm metal studs (max 1.15 BMT @ min. 450 ctrs) with 90mm glass wool batts (R<sub>g</sub>2.5), 15mm plasterboard.  
Total System R-Value: R=1.1m<sup>2</sup>K/W  
**NOT COMPLIANT**

**WT01**  
110mm brick, 50mm slightly ventilated air cavity, vapour permeable membrane, 92mm metal studs (max 1.15 BMT @ min. 450 ctrs) with 90mm glass wool batts (R<sub>g</sub>2.5), 15mm plasterboard.  
Total System R-Value: R=1.1m<sup>2</sup>K/W  
**NOT COMPLIANT**

**WT03**  
100mm brick, 20mm slightly ventilated air cavity, vapour permeable membrane, 200mm metal studs (max 1.15 BMT @ min. 450 ctrs) with 90mm glass wool batts (R<sub>g</sub>2.5), 13mm plasterboard.  
Total System R-Value: R= 0.45 m<sup>2</sup>K/W  
**NOT COMPLIANT**

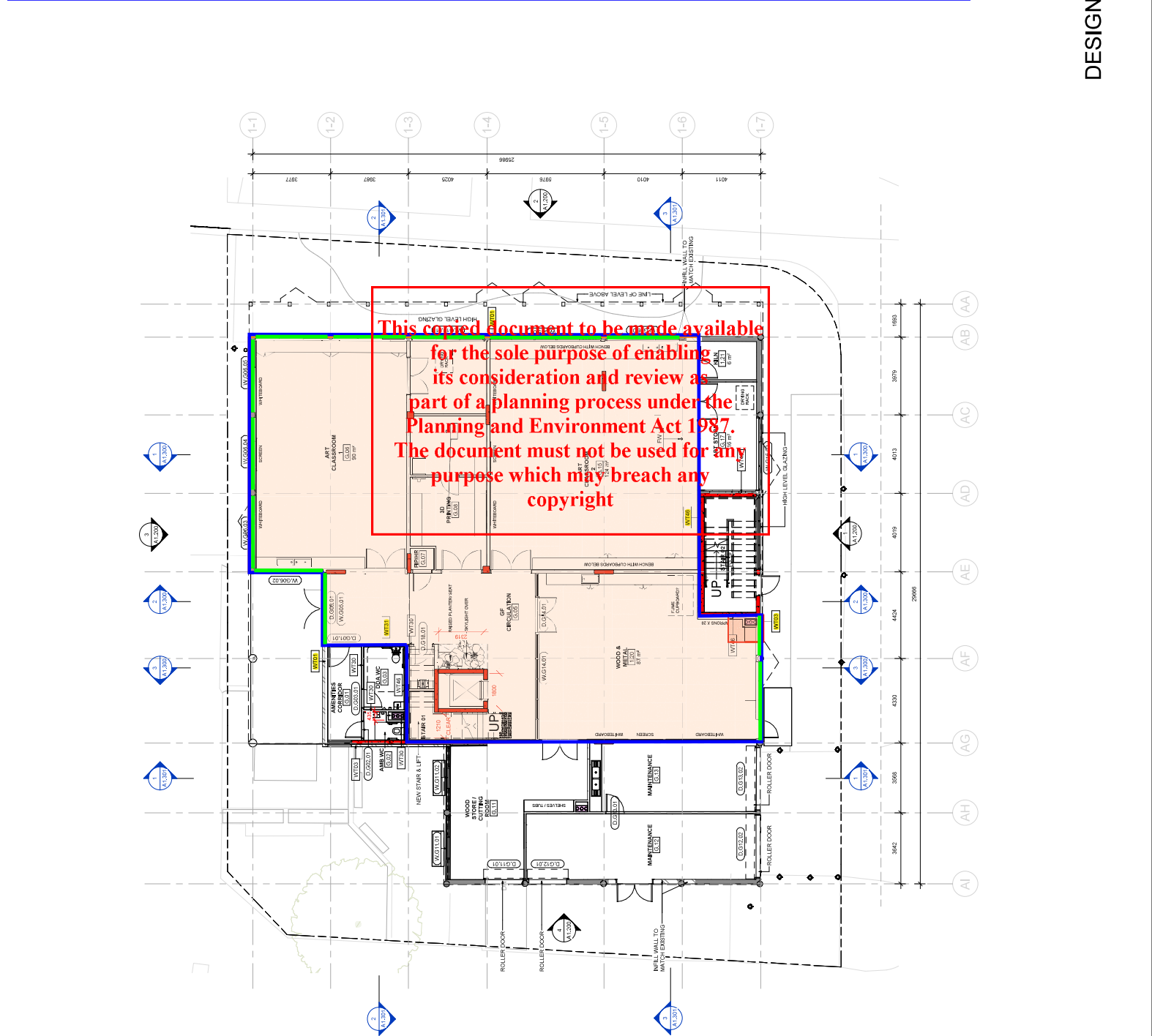
**WT04**  
100mm brick, 20mm slightly ventilated air cavity, vapour permeable membrane, 200mm metal studs (max 1.15 BMT @ min. 450 ctrs) with 90mm glass wool batts (R<sub>g</sub>2.5), 13mm plasterboard.  
Total System R-Value: R= 0.60 m<sup>2</sup>K/W  
**NOT COMPLIANT**

**WT10**  
9mm FC sheet, 35mm top hat, vapour permeable membrane, 92mm metal studs (max 1.15 BMT @ min. 450 ctrs) with 90mm glass wool batts (R<sub>g</sub>2.5), 13mm plasterboard.  
Total System R-Value: R= 1.0 m<sup>2</sup>K/W  
**NOT COMPLIANT**

**WT12**  
Lightweight cladding system, 15mm plywood, 15mm top hat, vapour permeable membrane, 92mm metal studs (max 1.15 BMT @ min. 450 ctrs) with 90mm glass wool batts (R<sub>g</sub>2.5), 13mm plasterboard.  
Total System R-Value: R= 1.0 m<sup>2</sup>K/W  
**NOT COMPLIANT**

**WT10**  
9mm FC sheet, 35mm top hat, vapour permeable membrane, 92mm metal studs (max 1.15 BMT @ min. 450 ctrs) with 90mm glass wool batts (R<sub>g</sub>2.5), 13mm plasterboard.  
Total System R-Value: R= 1.6 m<sup>2</sup>K/W  
**NOT COMPLIANT**

**WT12**  
Lightweight cladding system, 15mm plywood, 15mm top hat, vapour permeable membrane, 92mm metal studs (max 1.15 BMT @ min. 450 ctrs) with 90mm glass wool batts (R<sub>g</sub>2.5), 13mm plasterboard.  
Total System R-Value: R= 1.6 m<sup>2</sup>K/W  
**NOT COMPLIANT**



|   |
|---|
| <p><b>CLASS 9b CZ6 External Envelope Thermal Envelope Mark-up</b><br/>L1   Rev: 1<br/>16/01/2026</p>  |
| <p>Inclusion and glazing solutions equal or better than Section J15 minimum requirements stipulated are deemed to comply with D15 provisions.</p>   |
| <p>Minimum D15 levels are in accordance with AS/NZS 4859.2 - including thermal bridging</p>   |
| <p>Normal solutions indicated within this document satisfy Section J15 minimum requirements only. Architect/Contractor to ensure compliance with other performance requirements as applicable within the NCC.</p> |

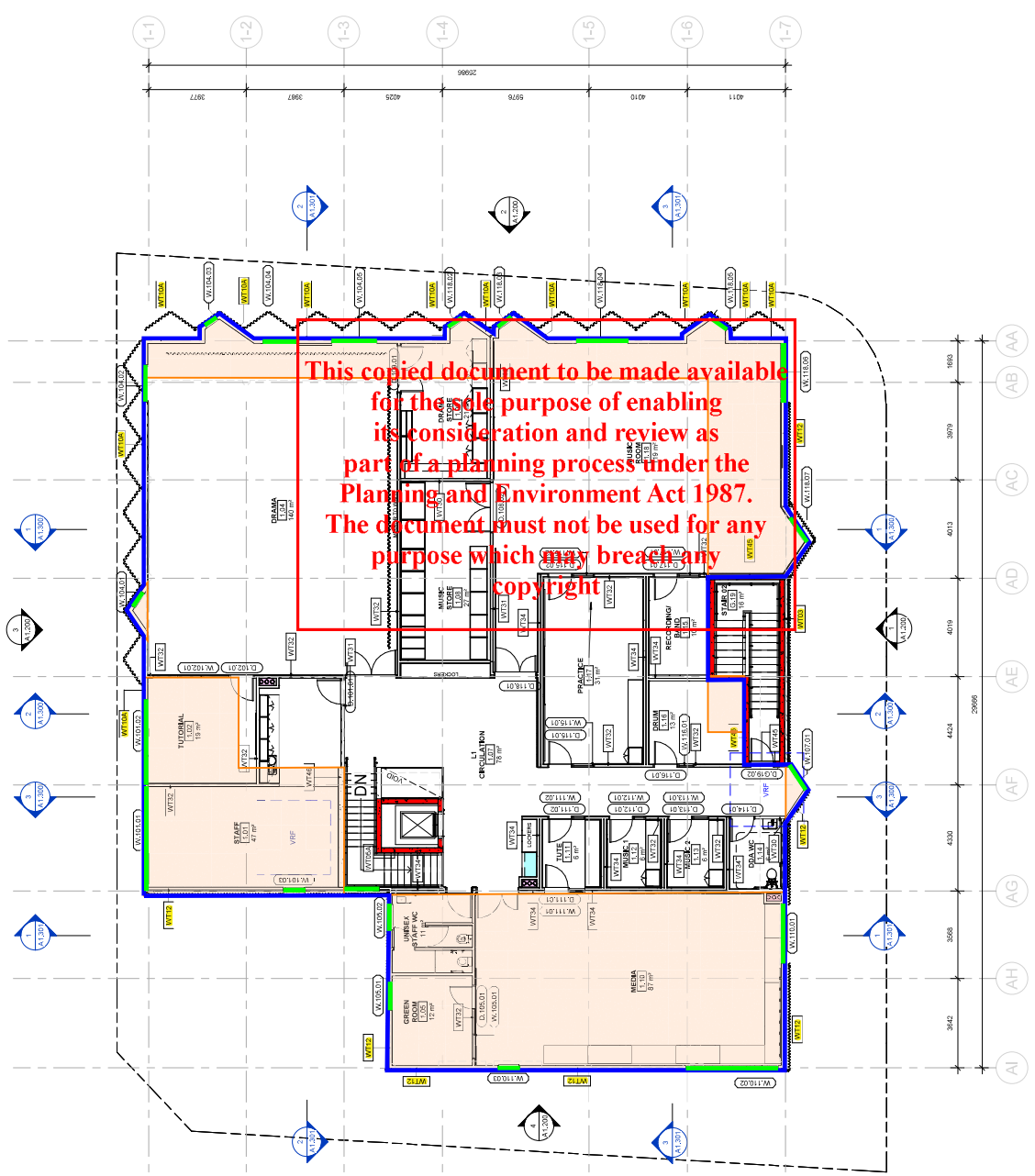
|   |
|---|
| <p><b>CLASS 9b CZ6 External Envelope Thermal Envelope Mark-up</b><br/>L1   Rev: 1<br/>16/01/2026</p>  |
| <p>Minimum D15 levels are in accordance with AS/NZS 4859.2 - including thermal bridging</p>   |
| <p>Normal solutions indicated within this document satisfy Section J15 minimum requirements only. Architect/Contractor to ensure compliance with other performance requirements as applicable within the NCC.</p> |

|   |
|---|
| <p><b>CLASS 9b CZ6 External Glazing</b><br/>Minimum D15 Requirements:<br/>U&lt;=4.5 W(m<sup>2</sup>K), SHGC&lt;=0.47<br/>Proposed Solution:<br/>PENDING</p> |
| <p><b>Nominal Solution:</b><br/>IGU (double glazed, clear) in commercial aluminium frame.<br/>U&lt;=3.5 W(m<sup>2</sup>K), SHGC&lt;=0.47</p>                |

PROJECT NAME: PENOLA CATHOLIC COLLEGE  
PROJECT ADDRESS: GLENROY - ARTS BUILDING  
35 WILLIAM ST GLENROY VIC 3046

|   |                                       |   |                                       |
|---|---------------------------------------|---|---------------------------------------|
| SCALE: 1:100                                    | DATE: 16/01/2026                      | DESIGNER: EB                                    | CLIENT: EB                            |
| PROJECT NO: 3344                                | DATE PRINTED: 30/10/2025 4:42:47 PM   | CHECKED: KO                                     | DESIGNER: EB                          |
| PROJECT ADDRESS: 35 WILLIAM ST GLENROY VIC 3046 | PROJECT NAME: GLENROY - ARTS BUILDING | PROJECT ADDRESS: 35 WILLIAM ST GLENROY VIC 3046 | PROJECT NAME: GLENROY - ARTS BUILDING |

|   |
|---|
| <p><b>CLASS 9b CZ6 External Envelope Wall</b><br/>Minimum D15 R-Value: R= 1.4 m<sup>2</sup>K/W<br/>Target D15 R-Value: R= 1.4 m<sup>2</sup>K/W</p>  |
| <p><b>Proposed solution:</b><br/>WT01<br/>110mm brick, 50mm slightly ventilated air cavity, vapour permeable membrane, 92mm metal studs (max 1.15 BMT @ min. 450 cts) with 90mm glass wool batts (R&lt;sub&gt;g&lt;/sub&gt;=2.5), 13mm plasterboard.<br/>Total System R-Value: R=1.1m<sup>2</sup>K/W<br/><b>NOT COMPLIANT</b></p> |
| <p><b>WT03</b><br/>13mm plasterboard, 28mm top hat, vapour permeable membrane, 200mm perlite concrete.<br/>Total System R-Value: R= 0.45 m<sup>2</sup>K/W<br/><b>NOT COMPLIANT</b></p>  |
| <p><b>WT04/WT146</b><br/>13mm plasterboard, 28mm top hat, 140mm concrete.<br/>Total System R-Value: R= 0.60 m<sup>2</sup>K/W<br/><b>NOT COMPLIANT</b></p>   |
| <p><b>WT10</b><br/>9mm FC sheet, 35mm top hat, vapour permeable membrane, 92mm metal studs (max 1.15 BMT @ min. 450 cts), 13mm plasterboard.<br/>Total System R-Value: R= 1.0 m<sup>2</sup>K/W<br/><b>NOT COMPLIANT</b></p>   |
| <p><b>WT12</b><br/>Lightweight cladding system, 15mm plywood, 15mm metal studs (max 1.15 BMT @ min. 450 cts), 13mm plasterboard.<br/>Total System R-Value: R= 1.0 m<sup>2</sup>K/W<br/><b>NOT COMPLIANT</b></p>   |
| <p><b>Nominal Solution:</b><br/>WT01<br/>110mm brick, 50mm slightly ventilated air cavity, 92mm metal studs (max 1.15 BMT @ min. 450 cts) with 90mm glass wool batts (R&lt;sub&gt;g&lt;/sub&gt;=2.5), unventilated air cavity, 13mm plasterboard.<br/>Total System R-Value: R= 1.6 m<sup>2</sup>K/W</p>                           |
| <p><b>WT03</b><br/>13mm plasterboard, unventilated air cavity, 92mm metal studs (max 1.15 BMT @ min. 450 cts) with 75mm glass wool batts (R&lt;sub&gt;g&lt;/sub&gt;=1.8), 13mm plasterboard.<br/>Total System R-Value: R= 1.6 m<sup>2</sup>K/W</p>  |
| <p><b>WT10</b><br/>110mm brick, 20mm slightly ventilated air cavity, vapour permeable membrane, 92mm metal studs (max 1.15 BMT @ min. 450 cts) with 90mm glass wool batts (R&lt;sub&gt;g&lt;/sub&gt;=2.5), unventilated air cavity, 200mm perlite concrete.<br/>Total System R-Value: R= 1.7m<sup>2</sup>K/W</p>                  |
| <p><b>WT04/WT146</b><br/>13mm plasterboard, 28mm top hat, 92mm metal studs (max 1.15 BMT @ min. 450 cts) with 90mm glass wool batts (R&lt;sub&gt;g&lt;/sub&gt;=2.5), 140mm concrete.<br/>Total System R-Value: R= 1.5 m<sup>2</sup>K/W</p>  |
| <p><b>WT10</b><br/>9mm FC sheet, 35mm top hat, vapour permeable membrane, 92mm metal studs (max 1.15 BMT @ min. 450 cts) with 90mm glass wool batts (R&lt;sub&gt;g&lt;/sub&gt;=2.5), unventilated air cavity, 13mm plasterboard.<br/>Total System R-Value: R= 1.6 m<sup>2</sup>K/W</p>  |
| <p><b>WT12</b><br/>Lightweight cladding system, 15mm plywood, 15mm top hat, vapour permeable membrane, 92mm metal studs (max 1.15 BMT @ min. 450 cts), unventilated air cavity, 13mm plasterboard.<br/>Total System R-Value: R= 1.6 m<sup>2</sup>K/W</p>  |



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## Appendix C – Preliminary Daylight Assessment

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## Memorandum

To: McIldowie Partners Date: 23 January 2026  
Attention: Jesslyn Humardani, Emily Gallagher & Davis Clarke  
From: Alex Brodie Reference: LCE102744  
Project: Penola Catholic College – Glenroy Campus  
Subject: Preliminary Daylight Modelling & Analysis Rev 1

---

This memorandum has been prepared to demonstrate the preliminary daylight performance for the Penola Catholic College – Glenroy Campus, located at 35 Williams Street, Glenroy.

The modelling presented herein is to demonstrate the preliminary daylight performance of the project against the Built Environment Sustainability Scorecard (BESS) - Indoor Environment Quality 1.4 Daylight Access minimum requirements.

## Reference Documentation

This assessment is based on the following:

- Architectural package (28.11.2025) from McIldowie Partners

## BESS Criteria

The daylight modelling has been undertaken in accordance with the BESS requirements for Indoor Environment Quality 1.4 Daylight Access - Non-Residential buildings:

- Points are awarded where it is demonstrated that a minimum of 33% of regular use area (refer to appendix A for the outlined regular use areas for the proposed design) achieves the target daylight factor.
- Daylight modelling software or daylight calculations must be completed to show the % of floor area achieving the target daylight factor of 2%, assuming a uniform design sky of 10,000 lux.
- Additional points are awarded where a higher proportion of regular use areas achieves the target daylight factor. Maximum points are awarded where 100% of regular use areas achieve the target daylight factor.

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## Modelling Inputs – Daylight Modelling

Simulation and analysis have been conducted using the Better Building software (which uses the Radiance simulation engine).

The following simulation parameters have been applied consistent with standard industry practice and in accordance with the BESS requirements.

Table 1: Modelling Parameters

| Modelling Parameters                     | Value                  |
|--|------------------------|
| Modelling Software                       | Better Building        |
| Simulation Engine                        | Radiance 5.3           |
| Sky Model                                | CIE 110 Overcast Sky   |
| Adjacent Structures / Topography         | Shading and built form |
| Glazing Visible Light Transmission (VLT) | 60%                    |
| Plane Height                             | 0m (floor plane)       |
| Reflectance Ceiling                      | 70%                    |
| Reflectance Floors                       | 30%                    |
| Reflectance Walls                        | 70%                    |
| Reflectance Ground                       | 20%                    |
| Shading elements to level 1              | 50% open               |

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## Daylight Results

Table 2 presents the daylight factor (DF) results of the daylight modelling (please refer to Appendix B for the Daylight Contour Plot) for each regular use area.

Table 2 – Daylight Modelling Results Summary – Ground Floor

| Level               | Zone                    | Floor Area (m2) | Area with DF≥2.0% (m2) |
|---------------------|-------------------------|-----------------|------------------------|
| 1                   | 1. GF - Art Classroom 2 | 128.54          | 53.47                  |
| 1                   | 2. GF - Art Classroom   | 91.24           | 85.9                   |
| 1                   | 3. GF - Wood & Metal    | 91.23           | 33.82                  |
| 2                   | 1. L1 - Drama           | 136.5           | 22.34                  |
| 2                   | 11. L1 - Drum Rm        | 15              | 0                      |
| 2                   | 12. L1 - Green Room     | 11.15           | 7.72                   |
| 2                   | 14. L1 - Recording      | 10.27           | 0                      |
| 2                   | 15. L1 - Tute           | 7.52            | 0                      |
| 2                   | 16. L1 - Music 2        | 7.35            | 0                      |
| 2                   | 17. L1 - Music 1        | 7.04            | 0                      |
| 2                   | 2. L1 - Music Rm        | 121.58          | 29.13                  |
| 2                   | 4. L1 - Media           | 87.8            | 49.87                  |
| 2                   | 5. L1 - Staff Rm        | 47.21           | 31.64                  |
| 2                   | 6. L1 - Practice Rm     | 33.15           | 0                      |
| 2                   | 9. L1 - Tutorial        | 18.66           | 18.66                  |
| TOTAL               |                         | 814.24          | 332.55                 |
| % Area with DF≥2.0% |                         | 40.8%           |                        |



## Conclusion

The results indicate that 40.8% of the regular use floor areas meet/exceed the BESS daylight factor requirements. It is expected that overall daylight results may change slightly as modelling is updated to reflect updated drawings.

Should you have any further queries on the above, please do not hesitate to contact the undersigned.

Regards,

**Alex Brodie**

Sustainability and Energy Services Consultant

Ph: 0402386226

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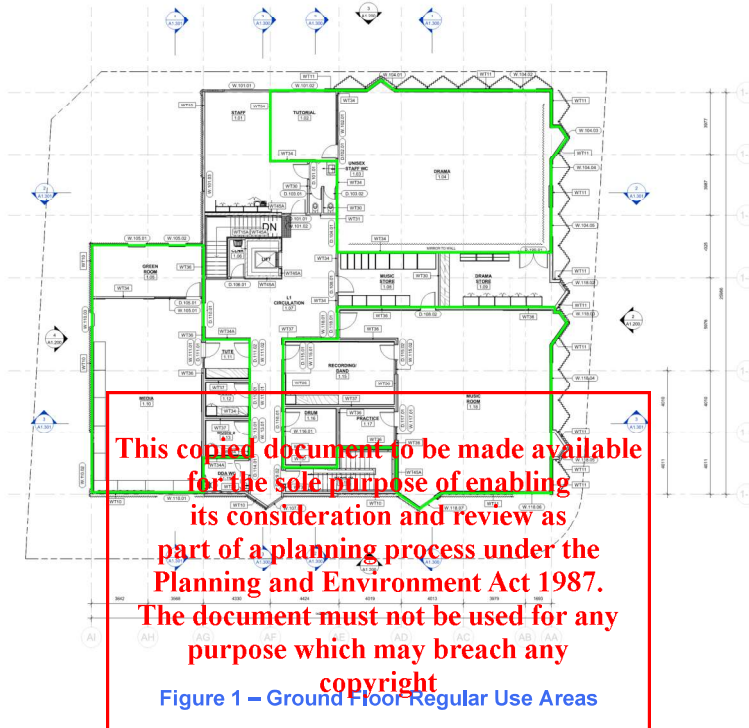
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## Appendix A: Regular Use Areas

As per the BESS tool notes, regular use areas are defined as any room or internal space of a non-residential building other than a bathroom, laundry, toilet, cupboard, corridor, stair, lobby, copying room, photographic darkroom, clothes drying room, and other space of a specialised nature occupied neither frequently nor for extended periods. These areas have been highlighted on the floor plan below.



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Figure 2 – First Floor Regular Use Areas

## Appendix B: Daylight Contour Plot

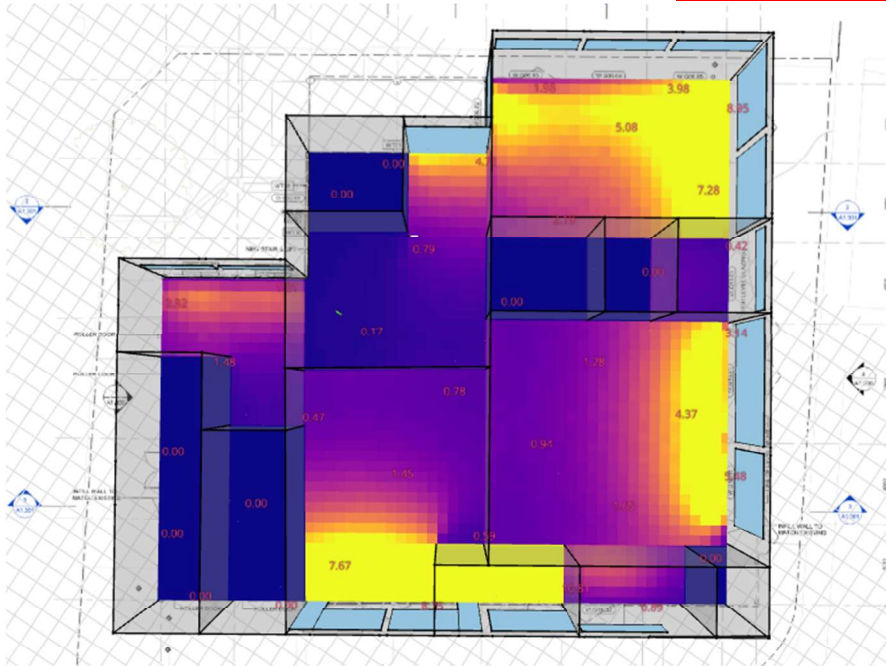


Figure 3 – Daylight Contour Plot – Ground Floor

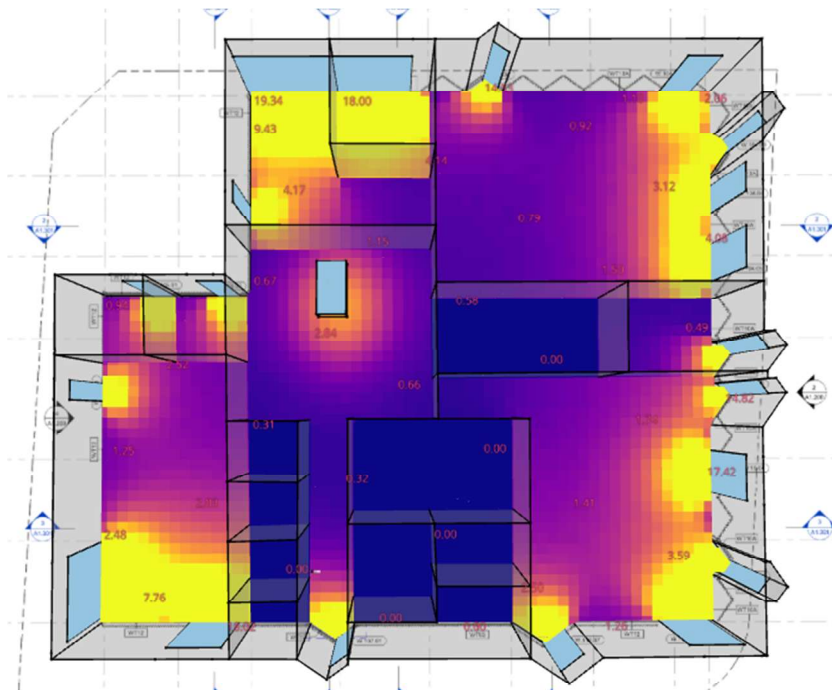




Figure 3 – Daylight Contour Plot – Ground Floor

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