Sustainability Management Plan

5 Mill Road, Lara

06th March 2025

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Table of Contents

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Document History

Version	Date	Status	Author	Approved
0	06/03/2025	First Issue	YL	DM

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Introduction & Council's Requirements

[redacted]s has been commissioned to provide guidance on achieving environmentally Sustainable Development outcomes for the proposed service station development located at 5 Mill Road, Lara.

The assessment is being carried out in compliance with Greater Geelong City Council's sustainability requirements specifically addressing Planning Policy Clause 15.01-2L *Environmentally Sustainable Development*.

Clause 15.01-2L of the policy outlines the key categories that the City of Greater Geelong has identified as crucial to be addressed in the assessment. These categories include Energy Performance, Water Resources, Stormwater Management, Indoor Environment Quality, Construction, Building & Waste Management, Building Materials, Transport, and Urban Ecology.

Stormwater quality management and its impact on the environment have been acknowledged by the City of Greater Geelong. As per the requirements of Clause 53.18 *Stormwater Management in Urban Development*, this report presents a solution to address the quality aspect of stormwater management.

Site & Proposed Development Description

The 4,391 m^2 site is located at 5 Mill Road, Lara within Greater Geelong local authority. The site currently contains a service station as shown in the image below:

Figure 1: Site location and surroundings sourced from Google Maps.

The proposal consists of redevelopment of the current site into a new service station. This will include a new retail + café building, new car parking and driveway as well as new amenities and storage.

ESD Assessment Tools

BESS

BESS has been built and is maintained by local governments and is the only dedicated tool in Victoria for assessing sustainable design at the planning permit stage.

BESS evaluates the energy and water efficiency, thermal comfort, and overall environmental sustainability performance of new buildings or modifications. It was created to ensure that new development adheres to sustainability requirements as part of a planning permit application.

A BESS assessment has been conducted for the proposed development, providing a benchmark for the level of sustainability achieved by the project in line with the SDAPP 10 Key Sustainable Building Categories.

Each target area within the BESS tool typically receives a score ranging from 1% to 100%. To meet the energy, water, stormwater, and IEQ requirements, a minimum score of 50% is necessary. An overall project score of 50% represents 'Best Practice,' while a score above 70% represents 'Excellence.

STORM

The Stormwater Treatment Objective - Relative Measure (STORM) calculator is a tool developed by Melbourne Water to assist with the design and assessment of stormwater management systems. The calculator enables users to determine the effectiveness of stormwater treatment measures in removing pollutants from stormwater runoff, thereby protecting waterways and aquatic ecosystems.

The STORM assessment can be found in Appendix 1.

Summary of Initiatives

Initiatives listed below should be reflected on TP drawings either graphically on the plan (e.g. bike spaces, RWT etc.) or with a clear note. All WSUD initiatives listed in Appendix 1 should be clearly noted on drawings including all areas diverting to the proposed treatment (e.g. RWT, raingarden etc.) – Refer to Appendix 1.

Category	Requirement
Management	80% of all construction and demolition waste to be diverted from landfill
	Separate utility meter
Water Efficiency	Minimum WELS rating of fittings and fixtures: 4 Star Toilets / 5 Star Taps
	18,000L tank(s) collecting water from part the roof of the new building – Water to be used for toilet flushing
Energy Efficiency	NCC 2022 section J commitment to meet requirement
	Illumination power densities to meet NCC 2022 section J7D3 requirements
	Sensors (motion, daylight, timers) for external and common area lighting
	Electric System chosen within one star of the best available product in the range at the time of purchase or 15% most efficient available products if no star rating is available
	HVAC system chosen within one star of the best available product in the range at the time of purchase or 15% most efficient available products if no star rating is available
	3kW Solar PV on development
Stormwater	15m² of Raingarden to treat 750m² of driveway
	Mechanical ventilation to provide fresh air rates 50% higher than minimum from AS1668 or to maintain CO2 level below 800ppm
	All paint, adhesives, sealants and flooring to be low VOC – refer to Appendix 2 for limits
	All engineered wood will be low formaldehyde with E0 or better certification
Transport	Bike spaces for visitors with minimum 50% increase on minimum statutory or 1 space for visitor if there is no requirement.
Waste	3-bin system (Rubbish, Recycling, FOGO) + Provision of space for future glass waste
Urban Ecology	At least 7% of the site is covered with vegetation
Materials	Timber framing if used to be certified PEFC, AFS or FSC – No rainforest timber to be used
	Steel to be sourced from steel maker with ISO 14001 facility a member of the World Steel Association's (WSA) Climate Action Program (CAP).
	Carpet and underlay with third-party sustainable certification (GECA, Carpet institute ECS etc.)

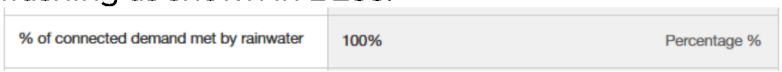
1. Construction and Building Management

Effective construction and building management practices are crucial for sustainable development. By minimizing construction waste and effectively monitoring building performance, these practices can significantly reduce the environmental impact of the development and enhance its long-term sustainability.

Initiative	Description	Reference
Metering and Monitoring	Separate utility meters (water and electricity) will be provided for the development.	BESS Man 3.2
Construction Waste Management	On-site staff will receive a construction waste management plan during a site orientation session to minimise on-site waste generation and ensure proper disposal. A minimum of 80% of all construction and demolition waste created on-site will be reused or recycled.	N/A
Construction Environmental Management	The builder will identify environmental risks associated with construction and implement management strategies such as effective erosion and sediment control measures throughout construction and operation. They will also ensure that earthworks are staged appropriately to avoid bare earthworks in high-risk areas of the site during periods of dominant rainfall.	Clause 53.18

2. Water Resources

Maximising water efficiency in developments helps conserve water resources, reduces the strain on local water systems, and lower water bills for homeowners, making it an environmentally responsible and economically beneficial choice for developers. Additionally, implementing water-efficient practices and technologies can also contribute to a more sustainable and resilient community.

Initiative	Description	Reference
Fixtures and Fittings	The development will be provided with efficient fittings and fixtures. This will all be for a reduction of potable water use onsite. The following minimum Water Efficiency Labelling Scheme (WELS) star rating will be specified: • 4-Star Toilets • 5-Star Taps (Kitchen and bathrooms)	BESS Wat 1.1
Rainwater Collection and use	The roof of the development will have rainwater runoff collected and stored in 18,000L tank(s). Additional charged pipe systems or multiple tanks may be installed to collect water if necessary. **If a charged pipe system is used, it will not be placed underneath the building's slab.** Rainwater collected will be utilised for toilet flushing, significantly reducing the development's stormwater impact and aiding in compliance with the STORM calculator (refer to Appendix 1). Rainwater tank size is appropriate for this development as it will cover all water demand for flushing as shown in BESS. 	BESS Wat 1.1 BESS Storm 1.1

3. Energy Efficiency

Maximizing energy efficiency in developments reduces greenhouse gas emissions and lowers utility costs for homeowners, making it an environmentally responsible and economically beneficial choice for developers. In addition, energy-efficient buildings are often more comfortable and healthier to live in, improving the quality of life for occupants.

Initiative	Description	Reference
NCC Section J Commitment	A section J (NCC 2022) DTS assessment will occur for the development (prior to construction) with the following commitments: • 10% improvement on NCC 2022 floor and ceiling insulation levels (Total R-Value); • Wall insulation and glazing system within NCC 2022 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 chosen within the best 15% of available products 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 the 15% most efficient available products if no star rating is available. Alternatively, an NCC JV3 modelling will be undertaken prior to construction. The JV3 modelling will demonstrate compliance with building fabric requirement when compared to an 'improved reference building' that will include the 10% improvement on NCC 2022 DTS floor and ceiling insulation levels. The JV3 approach described above would produce a lower score under BESS Energy 1.1 than the DTS approach however the BESS assessment submitted would maintain BESS compliance with the slightly decreased score. This project is a service station shop, therefore glazing would be considered display glazing making requirement for glazing performance U-Value 5.8 (or lower) and SHGC of 0.81 (or lower).	BESS Ene 1.2 BESS Ene 2.1 BESS Ene 2.3

Initiative	Description	Reference
Hot water System	An electric instantaneous or storage system will be installed for the development. The system will be chosen within one star of the best available whichever is greater. System efficiency should be chosen within the 15% most efficient available products if no star rating is available.	BESS Ene 3.2
HVAC System	Heating and cooling will be provided with VRF or packaged unit. HVAC unit will be chosen within one star of the best available in a similar range at the time of purchase or will be chosen with COP/EER within 15% of the best available product if no star rating is available.	BESS Ene 2.3
All Electric Development	The development will be all-electric and will not have a gas connection. This will align the development with Councils and state targets for net zero and reduction of fossil fuel usage.	BESS Ene 2.6
Internal Lighting	LED lighting will be implemented throughout the development resulting in lower energy consumption for artificial lighting. The development will commit to meet the maximum illumination power densities from NCC 2022 part J7D3. Additionally, the utilisation of light internal colours will enhance daylight penetration, leading to a decreased reliance on artificial lighting.	BESS Ene 3.7
Lighting Controls and External Lighting	LED lighting will be implemented for all external lighting. External lighting, common areas and spaces used intermittently will be controlled with motion sensors and/or daylight sensors reducing overall use and energy consumption. Ventilation in these areas will also be controlled with these sensors.	BESS Ene 3.7

4. Stormwater Quality Management

WSUD (Water Sensitive Urban Design) is crucial for developments because it helps manage stormwater runoff, reduces flooding risks, and improves water quality by using natural systems to filter and treat water. Additionally, WSUD can enhance the aesthetic value of a development by incorporating green infrastructure and providing green spaces for occupants to enjoy.

Initiative	Description	Reference
Rainwater Collection and use	The roof of the development will have rainwater runoff collected and stored in 18,000L tank(s). Additional charged pipe systems or multiple tanks may be installed to collect water if necessary. **If a charged pipe system is used, it will not be placed underneath the building's slab.** Rainwater collected will be utilised for toilet flushing, significantly reducing the development's stormwater impact and aiding in compliance with the STORM calculator (refer to Appendix 1). Rainwater tank size is appropriate for this development as it will cover all water demand for flushing as shown in BESS. % of connected demand met by rainwater 100% Percentage %	BESS Wat 1.1 BESS Storm 1.1
Raingarden	Part of the driveway will have rainwater runoff channelled towards a 15m^2 raingarden. The raingarden location will be confirmed by the civil engineer once engaged however it should be away from footings or boundary to avoid flooding issues (minimum 300mm). Implementation of raingarden will actively treat stormwater pollution and help towards achieving compliance with WSUD requirements as described in Appendix 1.	BESS Storm 1.1

5. Indoor Environment Quality

IEQ (Indoor Environmental Quality) is essential for development because it affects the health, comfort, and well-being of occupants by addressing factors such as air quality, temperature, lighting, and noise levels. Providing a high-quality indoor environment can also increase the value and desirability of a development, leading to higher occupancy rates and property values.

Initiative	Description	Reference
Daylight Access	Light internal colours will be used for the development which will result in better internal reflection of natural light, enhancing the penetration of daylight through windows or other openings. Large windows will be installed in around the café which will increase natural light access. The development has achieved best practice requirement as demonstrated in the daylight hand calculation prepared in Appendix 5.	BESS IEQ 1.4
Shading	The development is provided with north and west facing glazing (shop and café) Part of glazing are provided with horizontal projection above (large service station canopy and Drive through canopy). This is typically not the most appropriate type of shading for west façade however it is not possible to install external adjustable shading or vertical shading for a retail/shop as this would be a hazard for clients moving in and out and would not allow to display products. For this reason, these improved horizontal projections are deemed appropriate for east facing glazing. Based on all shading types proposed on each façade in the development, we have input 61% under IEQ 3.4 in BESS.	
Ventilation (Mechanical and Natural)	Mechanical ventilation will be provided to all offices to provide fresh air with a minimum 50% improvement of minimum rates from AS1668. Alternatively, mechanical ventilation will be provided to maintain CO2 levels below 800ppm.	BESS IEQ 2.3
Low VOC and Low Formaldehyde	All paints, adhesives and sealants and flooring should not exceed the limits outlined in Appendix 3. Alternatively, products will be selected with no VOCs.	BESS IEQ 4.1

Initiative	Description	Reference
	All engineered wood products will have 'low' formaldehyde emissions, certified as E0 or better or with no formaldehyde. Providers such as Polytec and Laminex Australia offer E0 or better products in their range.	

6. Sustainable Transport

Sustainable transport such as cycling and public transport is essential for residential developments as it reduces the environmental impact of commuting while improving air quality and decreasing traffic congestion. Additionally, it promotes healthy lifestyles by encouraging physical activity and reducing sedentary behaviours associated with car dependence.

Initiative	Description	Reference
Visitor Bike Parking	The service station will be provided with visitor bike spaces with minimum 50% improvement on statutory requirement or 1 space if there is no requirement.	BESS Tran 1.5

7. Operational Waste Management

Effective operational waste management is vital for developments to minimise the amount of waste generated, reduce environmental impacts, and improve sustainability by promoting recycling and composting. Implementing efficient waste management practices can also lower operating costs, increase efficiency, and enhance the overall liveability of the development.

Initiative	Description	Reference
Operational Waste	The development will be provided with a three-bin system including general, recycling and food & organic (FOGO) waste. Additional space will be provided in the waste storage to accommodate the future fourth waste stream for glass waste as per the Victorian recycling policy for 2030. 	BESS Waste 2.1

8. Urban Ecology

Incorporating urban ecology principles into development promotes biodiversity, provides ecological services such as air and water purification, and enhances the overall health and well-being of residents by connecting them with nature. Additionally, creating sustainable and resilient urban ecosystems can also help mitigate the impacts of climate change and support the long-term viability of the development.

Initiative	Description	Reference
Vegetated Area	The proposed development will be proposed with landscaped areas. This will provide an enjoyable working environment.	BESS Eco 2.1

9. Materials

Choosing the right materials for a development is crucial as it impacts the durability, energy efficiency, and overall sustainability of the buildings. Thoughtful material selection can minimize environmental impacts, improve indoor air quality, and contribute to the long-term value and desirability of the development.

Initiative	Description	Reference
Sustainable Timber	No rainforest timber will be used on site. Timber framing (if used on site) will be procured from accredited sources such as Forest Stewardship Council (FSC), Program for the Endorsement of Forest Certification (PEFC) or Australian Forestry Scheme (AFS).	Clause 15.01-2L
Carpet	Wherever used, carpet and carpet underlay will be chosen with as third party certification such as Global GreenTag, GECA or Carpet Institute of Australia Limited, Environmental Certification Scheme (ECS).	Clause 15.01-2L
Steel	Steel for the development (structural and reinforcing) will be procured from a responsible steel maker. 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).	Clause 15.01-2L

10. Result in Summary & Implementation

The development will comply with the BESS and WSUD requirements by implementing all measures, as stated in this report. All the measures included in this report have demonstrated their efficiency and are easy to upkeep, with any faults promptly noticeable to the development's occupants. This approach ensures the development's sustainability in the long run, as the installed systems will be maintained and functional throughout the building's life cycle.

All initiatives listed in the report will be implemented by the relevant design team member at the relevant stage of the development. An implementation schedule has been prepared as follows – Full detail for each initiative is available in the body of the report (hyperlink):

ESD Implementation Table

Initiative	Responsibility	Stage
Metering and Monitoring	Services Engineer Architect	Design Development
Construction Waste Management Plan – 80% of waste diverted from landfill	Head Contractor	Construction
Construction Environmental Management Plan	Head Contractor	Construction
Water Fixtures and Fitting – Minimum WELS rating	Architect Head Contractor	Design Development
Rainwater Collection and Reuse	Architect Civil Engineer	Design Development
NCC Section J commitment	Section J Consultant	Design Development
Hot Water System chosen within one star or 15% most efficient	Services Engineer Architect	Design Development
HVAC System chosen within one star of 15% most efficient	Services Engineer Architect	Design Development
Internal Lighting Power in line with NCC 2022 section J7D3	Services Engineer Architect	Design Development
External and common area Lighting – LED with sensors	Services Engineer Architect	Design Development
Raingarden treating part of the driveway	Architect Civil Engineer	Design Development
Mechanical Ventilation – 50% Improvement on AS1668 or CO2 level maintained at 800ppm	Service Engineer	Design Development
Low VOC and Low Formaldehyde Products	Architect Head	Design Development

Initiative	Responsibility	Stage
	Contractor	Construction
Bike parking for visitor – 50% increase on minimum statutory requirement or 1 space if no requirement	Architect	Design Development
Three bin system + Allocation for 4th bin	Architect Waste Consultant	Design Development
Carpet commitment to sustainable certification	Architect Head Contractor	Design Development
Steel commitment to responsible steel maker	Architect Head Contractor	Design Development
Timber commitment to certified plantations	Architect Head Contractor	Design Development

Appendix 1 –

WSUD Report

To address Clause 15.01-2L and 53.18, a Water Sensitive Urban Design (WSUD) assessment of the proposed development must occur.

Under Clause 53.18, WSUD assessment and associated proposed stormwater management system should be designed to:

- Meet the current best practice performance objectives for stormwater quality as contained in the Urban Stormwater - Best Practice Environmental Management Guidelines (Victorian Stormwater Committee, 1999). Currently, these water quality performance targets 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.
- Minimise the impact of chemical pollutants and other toxicants including by, but not limited to, bunding and covering or roofing of storage, loading and work areas.
- Contribute to cooling, improving local habitat and providing attractive and enjoyable spaces.

By identifying the impervious surfaces within the site and implementing treatments to mitigate the impacts of stormwater leaving the site, the proposed development has successfully fulfilled the objectives listed above.

The development was evaluated using the STORM tool, a widely accepted tool in the industry, to verify compliance with the aforementioned best practice targets. To meet the required standards, the development must attain a minimum compliance score of 100%.

1. **Exclusion of site areas for WSUD assessment**

Part of the site is existing and will be retained therefore implementing stormwater treatment on this part will be difficult. The impact on stormwater quality from the retained area will remain the same post-development as it was pre-development. Due to the constraints in treating this area and the unchanged impact between pre and post-development, this area will be excluded from the WSUD assessment. The area for the assessment will be 2,359.6m^2 out of a total site area of 4,391m^2.

Figure 2: Area excluded (Black) from the assessment as the impact will be unchanged.

2. Stormwater Quality Management Strategies & Site Demarcation

To achieve stormwater management objectives, it will be necessary to put in place stormwater treatment measures. The upcoming section outlines the surfaces that necessitate treatment and the specific treatment required. Effective management of stormwater flows in the building area will be crucial for the building's overall performance and its ability to meet stormwater management goals.

The total site area for the WSUD assessment is 2,359.6m^2. The following treatment will be implemented on-site:

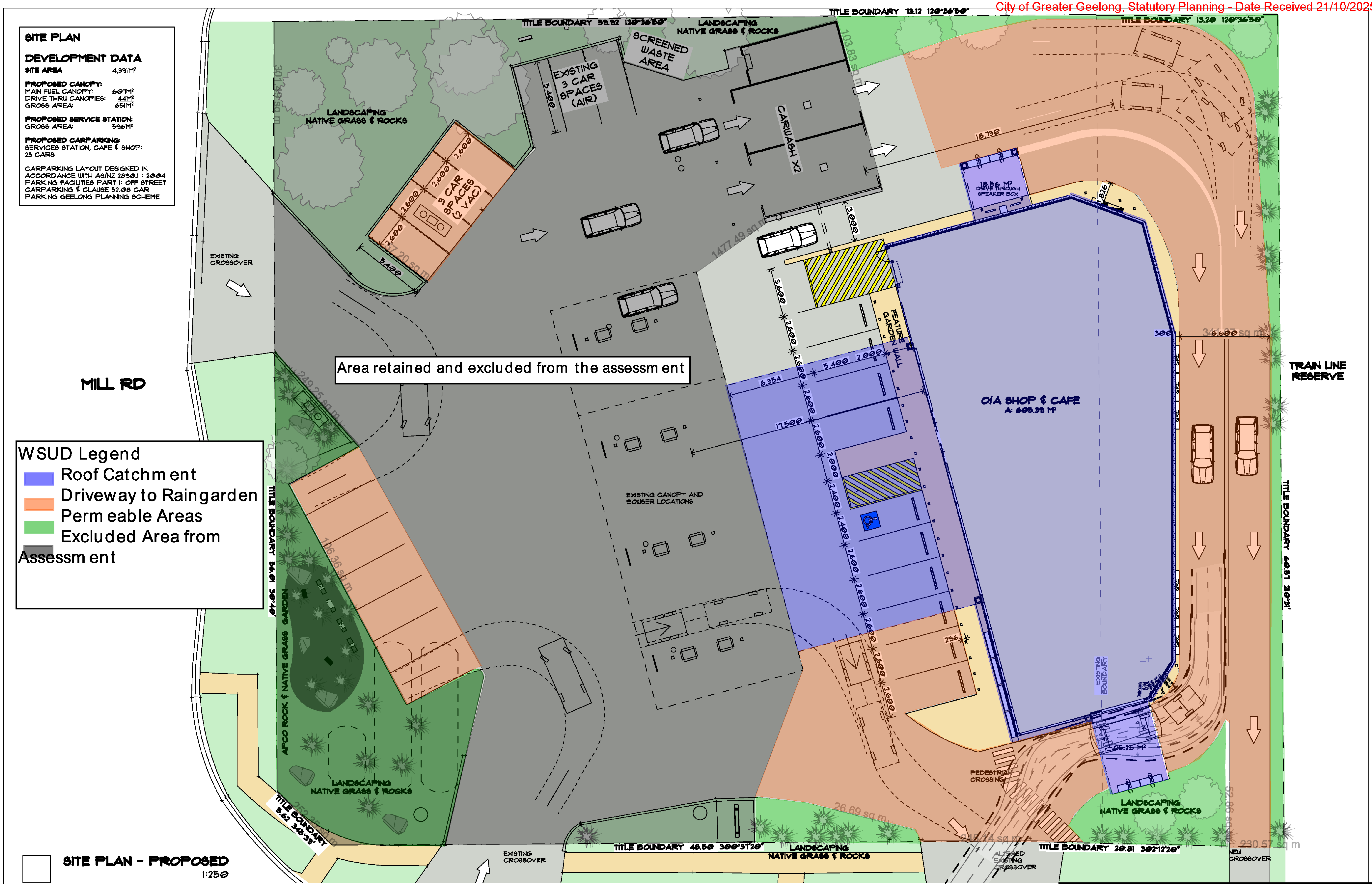
Surface	Treatment	Area	Description
Roof	Rainwater Tank	930.3m^2	The roof runoff will be diverted into a 18,000L rainwater tank. The rainwater will be used for **toilet flushing and laundry**. Rainwater collection might require the implementation of a charged pipe system that cannot be running underneath the building footprint.
Driveway	Raingarden	750m^2	Part of the exposed driveway will be diverted to a minimum of 15m^2 of raingarden.

Surface	Treatment	Area	Description
			Raingarden should be constructed as per Melbourne Water Guidelines for Inground Raingarden. Raingarden must be installed away from the boundary or footings due to flooding potential (minimum 300mm).
Landscaped Areas	No treatment	183.4m²	Part of the site will be designed as permeable. This will include landscaped areas.
Untreated Impervious Areas	No treatment	495.9m²	Part of the site will be left untreated before being released at the legal point of discharge. This will included pathways, untreated parts of driveways etc.

The development has prioritized maximizing permeable areas, resulting in decreased stormwater outflows from the site. Additionally, the proposed development includes vegetated areas, which not only reduces the heat island effect but also improves the local habitat.

3. WSUD Catchment Plan

Please refer to the next page for the full WSUD catchment plan including all treatment and areas included above.



SITE PLAN
DEVELOPMENT DATA
SITE AREA 4,391M²
PROPOSED CANOPY:
MAIN FUEL CANOPY: 607M²
DRIVE THRU CANOPIES: 44M²
GROSS AREA: 651M²
PROPOSED SERVICE STATION:
GROSS AREA: 536M²
PROPOSED CARPARKING:
SERVICES STATION, CAFE & SHOP: 23 CARS
CARPARKING LAYOUT DESIGNED IN ACCORDANCE WITH AS/NZ 2890.1 : 2004 PARKING FACILITIES PART 1: OFF STREET CARPARKING & CLAUSE 52.06 CAR PARKING GEELONG PLANNING SCHEME
WSUD Legend
Roof Catchment
Driveway to Raingarden
Permeable Areas
Excluded Area from Assessment
Area retained and excluded from the assessment
MILL RD
TRAIN LINE RESERVE
TITLE BOUNDARY 59.92 120°36'50"
TITLE BOUNDARY 13.12 120°36'50"
TITLE BOUNDARY 13.20 120°36'50"
TITLE BOUNDARY 48.50 300°37'20"
TITLE BOUNDARY 20.81 302°12'20"
LANDSCAPING NATIVE GRASS & ROCKS
SCREENED WASTE AREA
EXISTING 3 CAR SPACES (AIR)
CARWASH X2
3 CAR SPACES (2 VAC)
EXISTING CROSSOVER
EXISTING CANOPY AND BOWSER LOCATIONS
FEATURE GARDEN WALL
O/A SHOP & CAFE A: 603.33 M²
18.56 M² DRIVE THROUGH SPEAKER BOX
25.25 M²
APCO ROCK & NATIVE GRASS GARDEN
PEDESTRIAN CROSSING
ALTERED EXISTING CROSSOVER
NEW CROSSOVER
1477.49 sq m
301.36 sq m
103.83 sq m
249.25 sq m
106.36 sq m
26.69 sq m
230.57 sq m
SITE PLAN - PROPOSED
1:250

SITE PLAN - PROPOSED
AT: 5 MILL RD LARA 3212
FOR: APCO SERVICE STATIONS PTY. LTD.
DATE: FRIDAY 20 DECEMBER 2024
REV: TP3 - WIP
SCALE: 1:250
TOWN PLANNING
TP103

APCO LARA

DATE	REV ID	TRANSMITTAL SET NAME	ID	CHANGE NAME
23/11/2021	PP3	TOWN PLANNING		
25/3/2023	PP4	TOWN PLANNING		
WORK IN PROGRESS	TP3 - WIP	TOWN PLANNING		

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4. WSUD Assessment Results

All treatment measures and associated areas described above have been input into the STORM tool and the following results have been achieved:

Melbourne Water **STORM Rating Report**

TransactionID:	0
Municipality:	GREATER GEELONG
Rainfall Station:	GREATER GEELONG
Address:	5 Mill Road
	Lara
	VIC 3212
Assessor:	MSC
Development Type:	Commercial/Retail
Allotment Site (m2):	2,359.60
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 tank	930.30	Rainwater Tank	18,000.00	35	128.70	72.90
Raingarden	750.00	Raingarden 100mm	15.00	0	130.10	0.00
Untreated impervious area	495.90	None	0.00	0	0.00	0.00

Occupancy is based on number of car park provided x1.5.

5. Proposed Treatment Typical Cross-Section

This section will include a typical cross-section of all WSUD treatments proposed in the development.

a. Rainwater Tanks

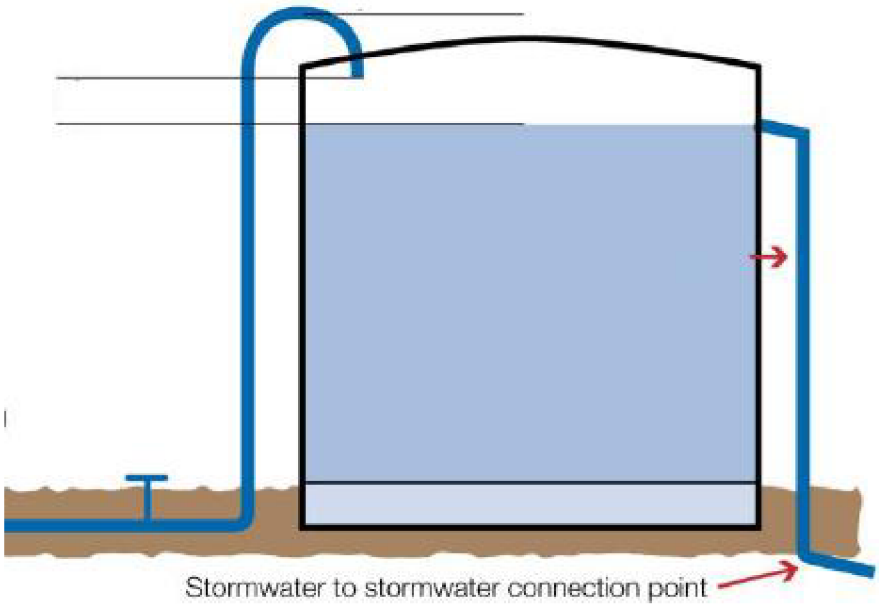


Figure 2: Typical Rainwater tank Cross-Section.

b. Raingarden

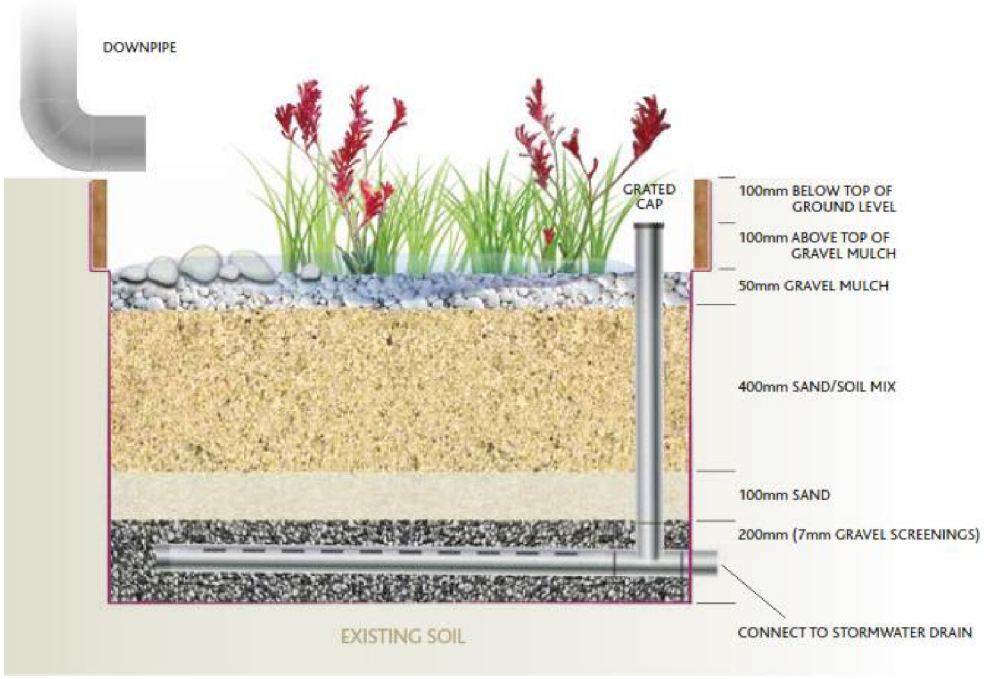


Figure 3: Raingarden Typical Cross-Section.

Acceptable raingarden design

- standard system with 300-500mm filter media depth
- including a submerged zone system and 300mm filter depth
- standard system with filter media depth of 500mm where surrounding soil has a high infiltration rate

Avoid

- standard raingardens with filter media depth less than 300mm
- raingardens downstream of a wetland or an oversized sedimentation basin

Note: All systems should be designed as per Adoption Guidelines for Stormwater Biofiltration Systems (FAWB, 2009).

Plant selection

This should be guided by expert opinion, based on the particular project conditions. The plant species that are commonly used in raingardens can be grouped into three general categories:

Category	Example plant species
Tolerant of both wet and dry conditions once established	*Carex appressa (tall sedge)*
Tolerant of dry conditions once established	*Ficinia nodosa* *Lomandra longifolia* *Juncus amibilis*
Prefer more constant conditions without wet/dry extremes	*Goodenia ovate* *Juncus flavidis*

Note: Other plant species may be appropriate for a particular system and these should be guided by expert opinion.

Scientific Name	Common name	Height (m)	Width (m)	Density (m^2)
Acacia implexa*	Lightwood	8	5	1
Acacia melanoxylon*	Blackwood	12	8	1
Allocasuarina cunninghamiana*	River Sheoak	15	8	1
Carex appressa	Tall Sedge	0.5-1.2	.05-1	4
Callistemon sieberi	River Bottlebrush	4	2	1
Dianella admixta	Black-anther Flax-lily	0.3-0.8	0.5-1.5	6
Dianella longifolia	Smooth Flax-lily	0.5	0.5	6
Dianella tasmanica	Tasman Flax-lily	0.75	1	4
Ficinia nodosa	Nobby Club-rush	0.5-1.5	0.6-2.0	5
Gahnia radula	Thatch Saw-sedge	1.5	1	4
Juncus amabilis	Hollow rush	0.2-1.2	0.2-0.5	6
Juncus flavidus	Yellow Rush	0.4-1.2	0.2-1	4
Lepidosperma laterale var. laterale	Variable Sword-sedge	1	0.4-1	4
Lomandra filiformis ssp. Filiformis	Wattle Mat-rush	0.3	0.3	6
Lomandra longifolia	Spiny-headed Mat-rush	1	1	4
Lomandra nana	Dwarf Mat-rush	1.5	10-20	5
Myoporum parvifolium	Creeping Boobialla	20-30	300	4
Poa labillardieri	Common Tussock-grass	0.3-0.8	1.3	4

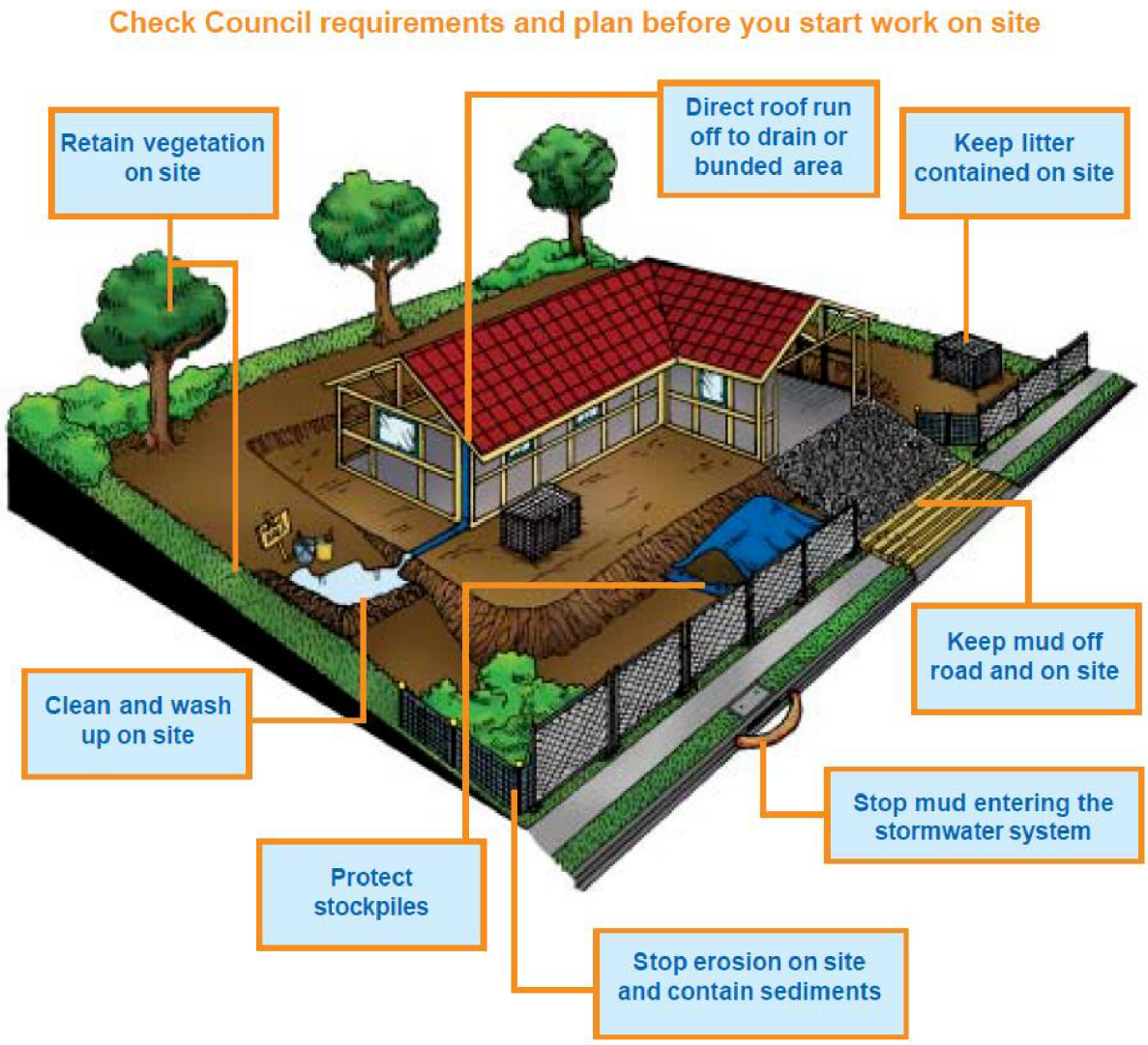
*Canopy trees are only suitable in vegetation over 6m2 with a minimum width of 2m.

At least 50% of the plants chosen for a bioretention system should have the following characteristics for effective nutrient removal (FAWB, 2009):

- high root density
- extensive fibrous root systems (no bulbs)
- vigorous growth
- tolerant of freely draining soils
- drought and inundation tolerant

6. Stormwater Management During Construction

To prevent contamination of stormwater discharge and to decrease the speed of flows produced during construction, steps will be taken to manage stormwater. These measures will involve establishing buffer strips and maintaining a clean site by removing loose rubbish. "Keeping Our Stormwater Clean - A Builder's Guide" by Melbourne Water provides additional information. The objectives depicted in the diagram below illustrate ways to minimise the effects of stormwater runoff during the construction phase.



Appendix 2 – WSUD Maintenance Manual

WSUD manuals are sourced from the City of Port Philip which has developed a detailed manual for the majority of treatment systems.

Tips for undertaking maintenance

Things to look for and how to fix them.

Leaf litter / debris in gutters	**Pump not working**
Regularly clear your gutters. Make sure you cover the tank inlet if you're rinsing down the gutters to avoid debris entering the tank.	Check operating instructions for your pump. Check that pumps are kept clear of surface water (flooding), vegetation, and have adequate ventilation. Pumps should be serviced every few years to prolong the pump life.
Blocked downpipe	**Mains backup or pump not working**
If you see water spilling from the edge of the gutters check that the downpipe is not blocked, removing any debris.	Have you heard the pump operating? If the mains backup switching device fails many people do not notice for a long time. Consider a manual system if the switching device is problematic and you don't mind operating it manually.
First flush diverter clogging	**Overflow**
To clean out, unscrew the cap at the base of the diverter and remove the filter. Wash the filter with clean water and the flow restrictor inside the cap.	Check that the overflow is not blocked and that there is a clear path for water to safely spill from the tank through the overflow pipe when full. Check that a clean mesh screen is safely in place to prevent mosquitoes entering the tank.
Debris on the mesh cover over inlets / outlets	**Sediment / debris build-up in tank (more than 20mm thick)**
The fine stainless steel mesh is similar to fly screen mesh. It should be cleaned regularly to ensure it does not become blocked with leaves and other material.	Over time a small amount of fine sediment will collect in the bottom of your tank and this is harmless and natural. It should not be disturbed until it is approx 20 mm thick which may take many years. To clean your tank out simply empty your tank and wash out with a high-pressure washer or hose.
Dirt and debris around the tank base or side.	**Base area**
Keep leaf build-up, sticks, pot plants and other items off the lid of your tank. Use a hose to remove dust and dirt from the outside of the rainwater tank and ensure there is no debris on the base, bottom lip and walls of your tank.	Tanks must be fully supported by a flat and level base. Check for any movement, cracks or damage to the slab or pavers. If damage is observed, empty the tank to remove the weight and have the fault corrected to prevent damage to the tank. There is no warranty from suppliers for damage to a rainwater tank if the base has failed.
Smelly water or mosquitos	**Monitoring the water level**
Rainwater tanks can smell if there is debris in the gutters. Check the gutters and leaf strainers are clean. Mosquitos or wrigglers can make their way into your tank if they are small enough to pass through the inlet strainer. A very small amount of chlorine (approx 4 parts per million) can be put in the tank to kill off mosquitos or the bacteria causing odours. The chlorine will disinfect the water and then evaporate. Chlorine tablets from a pool supplier can be used (but check the recommended dose based on your tank capacity).	A range of devices are available to monitor water level. Some simple float systems can be used effectively.

Acknowledgement: Information from PJT Green Plumbing's 'Maintenance Guide for Your Rainwater Tank' was used to develop this fact sheet.

For more information please visit **www.portphillip.vic.gov.au**
or contact the Sustainability team via:

Phone: 03 9209 6777
email: sustainabledesign@portphillip.vic.gov.au

Maintenance manual

Rainwater tanks

Site address: _____

Planning permit number: _____

Rainwater tank maintenance

This manual lists the key tasks required to maintain a domestic rainwater tank and the recommended frequency of each task. This manual can be submitted with planning permit applications for developments that include the installation of a domestic rainwater tank. Once endorsed, the property owner is responsible for continuous implementation of rainwater tank maintenance, in accordance with the guidance in this manual.

Rainwater tanks are an exceptional tool for environmental protection. They collect and store roofwater for use inside and outside the home. This simultaneously reduces the demand on our precious potable mains water and limits the amount of stormwater pollutants that enter our sensitive Bay.

Maintenance of rainwater tanks is relatively easy however it is important to do the following key tasks to ensure the quality of water is high:

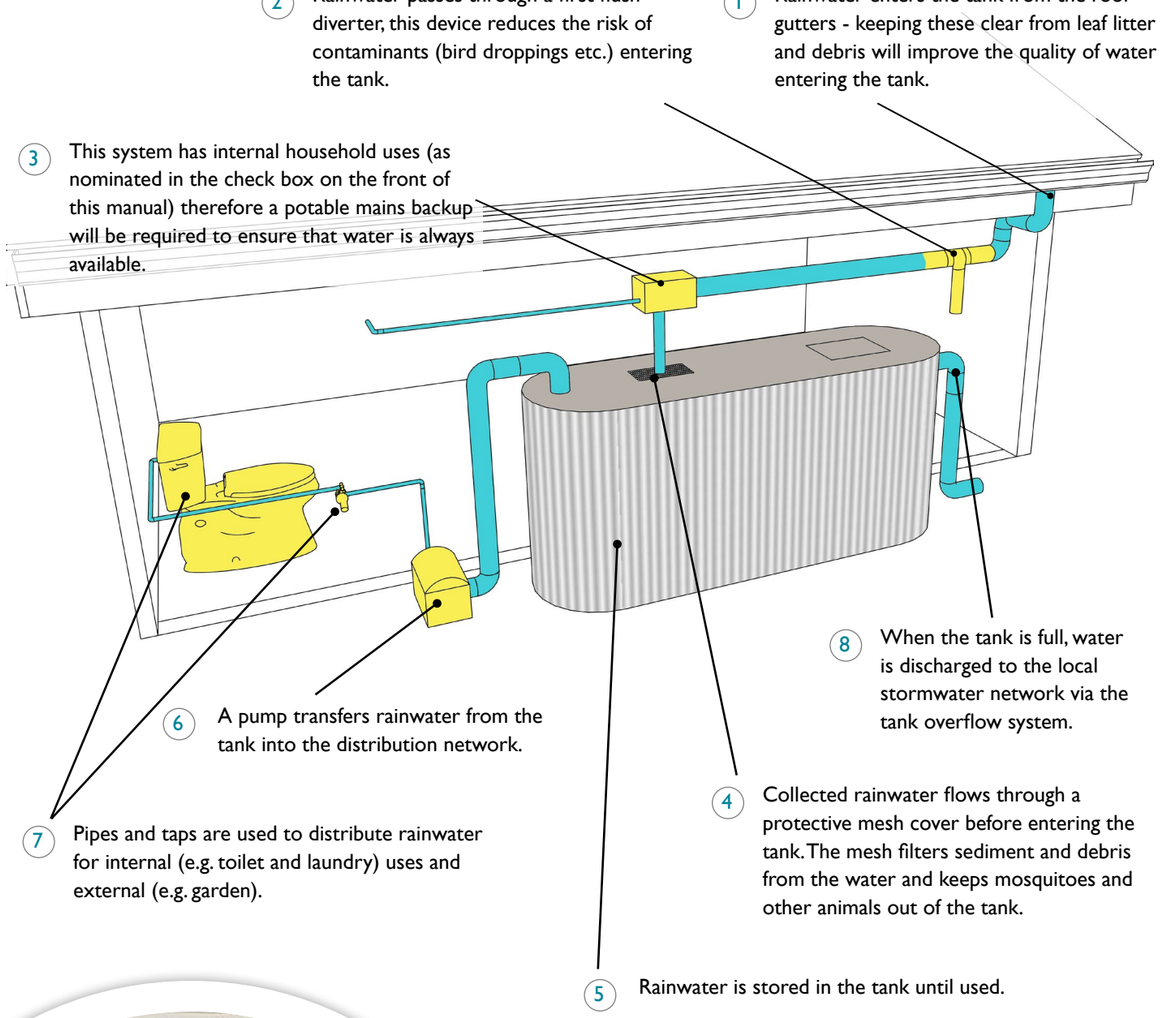
- stop leaf litter and debris entering the tank.
- prevent bird droppings and dust building up in the gutters.
- prevent mosquitos and other animals entering the tank.

Tank connected to	toilet only ☐ toilet & irrigation ☐ toilet & laundry & irrigation ☐ toilet & laundry & hot water & irrigation ☐
Rainwater tank location	
Planning drawing number showing rainwater tank location	
Rainwater tank construction date	
Date of final building inspection	
Tank volume (litres)	
Area or percentage of the roof that is connected to the tank via gutters and downpipes	

Maintenance Overview

Rainwater Tank Maintenance

The following diagram identifies the key items which are important for rainwater tanks and their maintenance.



Maintenance Checklist

The property owner is responsible for checking the maintenance items in this checklist at the recommended frequency at the bottom of the table. The maintenance log at the bottom of the page should be filled in once each maintenance check is complete. Upkeep of this maintenance log should continue throughout the life of the rainwater tank.

Item	Rainwater tank element	Inspection item	Y/N	Likely maintenance task
1	Roof gutters and downpipes	Is there leaf litter or debris in the gutters?		Remove by hand and dispose responsibly.
2	First flush diverter	Is there anything blocking the first flush diverter (leaves etc)?		Remove by hand and dispose responsibly.
3	Potable mains back up device	Is the potable mains back up switch operating correctly?		Repair or replace device. Consider a manual switching device.
4	Mesh cover	Has the mesh cover deteroriated or have any holes in it?		Replace mesh cover.
5	Tank volume	Is there large amounts of sediment or debris sitting in the bottom of the tank, reducing the volume available in the tank to store water?		Remove sediment and dispose responsibly.
6	Pump	Is the pump working effectively? Have you heard it on a regular basis?		Check the potable mains back up is not permanently on. Repair or replace pump.
7	Pipes and taps	Are pipes and taps leaking?		Repair as needed.
8	Overflow	Is the overflow clear and connected to the stormwater network?		Remove blockages and/or restore connections to stormwater network.
9	Supporting base	Are there any cracks or movement of pavers?		Empty the tank to reduce weight then repair any damage to the base.

Maintenance frequency												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
All tasks	x			x			x			x		

Regular maintenance will improve the water quality and extend the life of your system. A well maintained tank isn't likely to need to be cleaned out for up to ten years (when there is more than 20mm of accumulated sediment).

Maintenance Log

Maintenance date	Maintenance undertaken

Tips for undertaking maintenance

Things to look for and how to fix them.

Scour or erosion	**Weeds**
Erosion and scour reduce the overall area of treatment by directing flows to certain areas only. Erosion or scour can be re-profiled with hand tools, limiting the damage to adjacent vegetation. If fill material is required to create a flat surface, use an appropriate raingarden planting media mix. If erosion / scour keeps happening at the inlet, place some small rocks where erosion occurs.	Weeds can take over the plants which are needed in the raingarden for treatment. Hand pull weeds and dispose of appropriately. Plant bare patches if needed. Weeding should take place before the plants flower to reduce the likelihood of seed dispersal and further regeneration.
Rubbish, leaf litter or sediment	**Moss or clay on surface**
A lot of rubbish or leaf litter at the inlet or on the surface of the raingarden can affect how well water can enter and filter through the raingarden. This material can be removed easily by hand or with tongs / rakes. Collected litter should be placed into bags or similar for disposal.	Moss or clay on the surface of the raingarden can result in a crust forming which prevents water from filtering and being treated. Use hand tools to scrape off the clay or moss and dispose of appropriately. Check raingarden drains.
Uneven surface	**Raingarden outlets not draining**
An uneven surface may result in some areas not getting wet during rain events, reducing the area of treatment. Depressions or mounds can be flattened with hand tools, limiting the damage to vegetation.	Blockages of outlet pits and pipes can cause a flooding risk for the property as water is unable to leave the raingarden. Blockages are typically caused by sediment, leaf litter and rubbish. Blockages should be removed manually, by hand or with hand tools such as tongs and shovels. Large blockages in pits may require vacuuming or other appropriate machinery.
Elevated surface level / lots of excess sediment on surface	**Impermeable liner**
If sediment has entered the system and has raised the level of the surface, this reduces the amount of water which can be filtered. Use hand tools to remove/scrape sediment from around the plants. Remove sediment from the raingarden and dispose of appropriately.	An impermeable liner (e.g. geotextile or flexible membrane) is sometimes used to ensure water does not move into the surrounding soils. This may be required if the surrounding soils are very sensitive to any added moisture (e.g. sodic soils, shallow groundwater or close proximity to significant structures such as building foundations).
Unhealthy or dying plants / bare patches	**Raingarden holding water on the surface because of blocked planting media**
Good plant cover is critical for raingardens so if plants are looking stressed in dry periods, irrigation may be required. Remove (prune) any areas affected by disease or pests. If the plants are dying and have created bare patches, the plants need to be replaced. If the plants keep struggling, replace with a plant type which is growing well in the raingarden.	Generally raingardens should be able to filter water at a rate of ~100mm per hour. If the surface of the raingarden is clogged (by clay or moss etc.) or the underlying filter media is not appropriate then water will not be able to drain through the system to be treated. If the surface is clogged use hand tools to scrape off the clay or moss. If this doesn't fix the drainage issue remove an area of planting media to expose the filter media. Check that water can pass through the filter media by pouring water on its exposed surface. If the water can drain then replace the top planting media and check for blockages elsewhere. If the water does not drain the filter media will need to be replaced.

For more information please visit **www.portphillip.vic.gov.au**
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Phone: 03 9209 6777
email: sustainabledesign@portphillip.vic.gov.au

Maintenance manual

Raingardens

Site address: _____

Planning permit number: _____

Raingarden maintenance

This manual lists the key tasks required to maintain a domestic raingarden and the recommended frequency of each task. This manual can be submitted with planning permit applications for developments that include the installation of a domestic raingarden. Once endorsed, the property owner is responsible for continuous implementation of raingarden maintenance, in accordance with the guidance in this manual.

A raingarden is a specially designed garden that uses plants and soil to remove the pollutants from stormwater runoff that is generated from roofs, driveways and paths following rainfall events. These natural treatment systems help protect the environment by reducing the amount of stormwater runoff and pollutants that enter the Bay.

Maintenance of raingardens is essential in order to ensure that they:

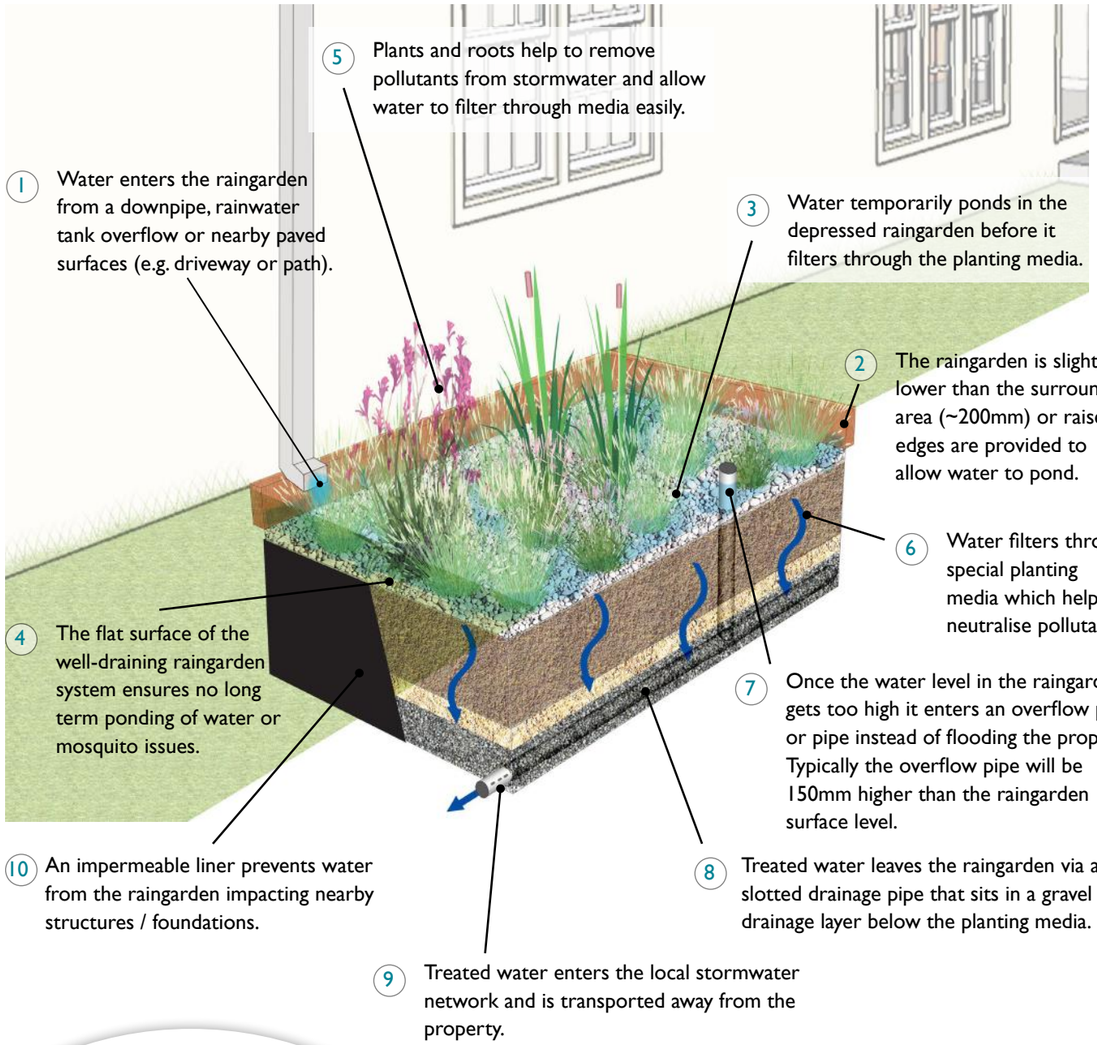
- effectively treat stormwater,
- continue to look good, and
- don't cause local flooding.

Raingarden location	
Planning drawing number showing raingarden location	
Raingarden construction date	
Date of final building inspection	
Area of raingarden (m^2)	
Area of catchment (m^2) (e.g. roof and/ or paving) directed to the raingarden	

Maintenance Overview

Raingarden Maintenance

This diagram depicts an in-ground raingarden. Raised bed raingardens are also common (refer to photograph).



Note: It is important not to add fertiliser, compost or floatable mulch to a raingarden as the nutrients will pass through the raingarden and pollute the Bay. The plants best suited to raingardens will grow well in the planting media and take nutrients for their growth from the water entering the raingarden.

Maintenance Checklist

The property owner is responsible for checking the maintenance items in this checklist at the recommended frequency at the bottom of the table. The maintenance log at the bottom of the page should be filled in once each maintenance check is complete. Upkeep of this maintenance log should continue throughout the life of the raingarden.

Item	Raingarden element	Inspection item	Y/N	Likely maintenance task
1	Raingarden inlet	Is there scour or erosion where water enters the raingarden?		Re-profile with hand tools, place gravel or stones at the inlet.
		Is there rubbish, leaf littter or sediment blocking the inlet?		Remove by hand and dispose responsibly.
2	Raingarden surface level	Is the level of the raingarden surface sitting less than 5 cm below the raingarden edges/borders?		Remove sediment from the surface so it is sitting about 10-20 cm below surrounding areas.
3	Raingarden temporary detention	Is there moss or clay on the surface of the raingarden which seem to be slowing the filtration of flows?		Remove the crust from the top of the raingarden and check water will filter through exposed media.
4	Raingarden surface	Are there areas which appear to be higher and are not getting wet during rain events?		Smooth out surface so it is flat with hand tools.
		Are there areas which have been eroded away or scoured?		
5	Plants	Are the plants looking unhealthy or dying?		Prune diseased sections, irrigate and/ or replace dead plants. If plants keep dying, replace with a different type which is doing well. Do not use fertilizer to improve plant health as this will pollute the raingarden.
		Are there bare patches forming between plants?		
		Are there weeds present?		Remove weeds by hand and dispose responsibly.
6	Planting media	Is the raingarden holding water for more than a couple of hours after the rain has stopped?		Remove and replace the top 100 mm of planting material (loamy sand).
7	Overflow pit / pipe	Is there anything blocking the top of the overflow pit / pipe preventing water from entering?		Remove blockages and dispose responsibly.
8	Underdrainage	Is there rain draining to the bottom of the raingarden following heavy rain?		Flush the underdrain or uncover it to check for blockages.
9	Stormwater network connection	Is there water ponding in the overflow pit or pipe and not entering the stormwater network?		Remove blockages and dispose responsibly.

Maintenance frequency

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
			x						x		

\+ after heavy rainfall

Maintenance Log

Maintenance date	Maintenance undertaken

Appendix 3 – Green Star VOC Limits

VOC Limits for Paints, Adhesives and Sealants

Product Category	Maximum VOC content (g/L)
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 sealants, waterproofing membranes and sealants, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

VOC Limit for Carpets

Test Protocol	Limit (mg/m² per hour)
ASTM D5116 – Total VOC Limit	0.5
ASTM D5116 – 4 -PC (4-Phenylcyclohexene)	0.05
ISO 16000 / EN 13419 – TVOC at three days	0.5
ISO 10580 / ISO/TC 219 (Document N238) – TVOC at 24 hours	0.5

Appendix 4 – Daylight Hand Calculation

Daylight access in the Café and Café seating area was assess using the Green Star Daylight Hand Calculation.

The Green Star Daylight Hand Calculation is a simple method to assess how much of a space has achieved the minimum BESS best practice requirement (2% Daylight Factor (DF)). The calculation is based on one simple formula as follows: Zone of compliance = 2 x Height of window above working plane x Width of the window. Windows must have a minimum of 40% VLT to us this hand calculation method.

Working plane is 700mm for the office. See below for a mark-up of nominated areas (blue) and compliant areas (orange) including the additional skylight on first floor:

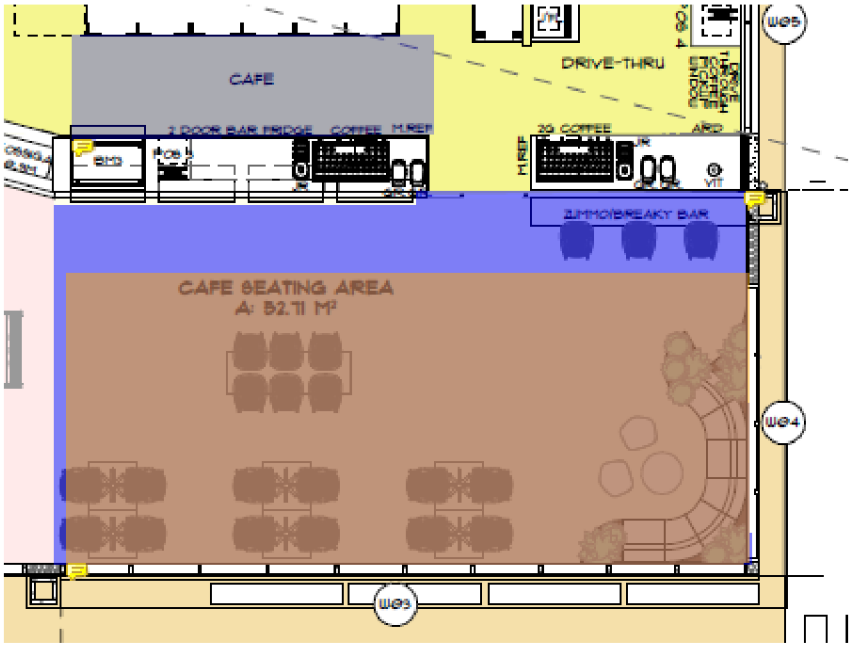


Figure 3: Daylight Hand Calculation mark-up.

Note the below table represents daylight performance outcomes.

Space Type	Nominated Area (m²)	Floor Area Compliant (m²)	Compliant Areas (%)
Café	7.5		
Café Seating Area	52.7	41.2	
TOTAL	**60.2**	**41.2**	**68%**

Appendix 5 – BESS Report

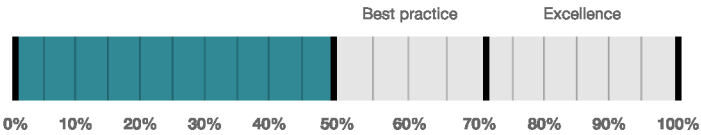
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 5 Mill Rd Lara Victoria 3212. 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 Greater Geelong 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

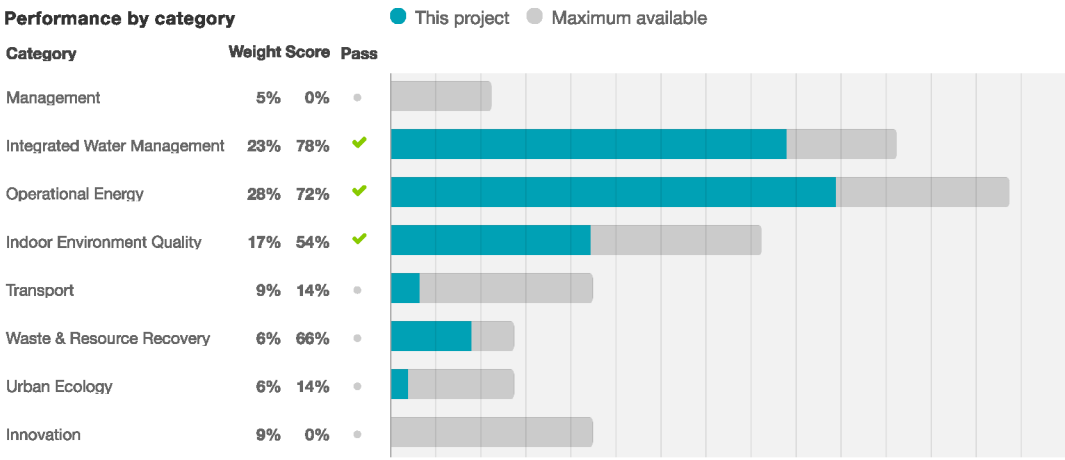


52%

Project details

Name	5 Mill Road, Lara
Address	5 Mill Rd Lara Victoria 3212
Project ID	[redacted]
BESS Version	BESS-9
Site type	[redacted]
Account	
Application no.	
Site area	4,391 m²
Building floor area	548 m²
Date	06 March 2025
Software version	2.0.1-B.580

Performance by category



Buildings

Name	Height	Footprint	% of total footprint
Shop/Cafe	1	549 m^2	100%

Dwellings & Non Res Spaces

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Shop				
Shop/Cafe	1	549 m^2	Shop/Cafe	100%
Total	**1**	**548 m^2**	**100%**	

Supporting Evidence

Shown on Floor Plans

Credit	Requirement	Response	Status
Integrated Water Management 2.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)		-
Transport 1.5	Location of non-residential visitor bicycle parking spaces		-
Waste & Resource Recovery 2.1	Location of food and garden waste facilities		-
Waste & Resource Recovery 2.2	Location of recycling facilities		-
Urban Ecology 2.1	Location and size of vegetated areas		-

Supporting Documentation

Credit	Requirement	Response	Status
Integrated Water Management 2.1	STORM report or MUSIC model		-
Operational Energy 1.1	Energy Report showing calculations of reference case and proposed buildings		-
Operational Energy 3.7	Average lighting power density and lighting type(s) to be used		-
Indoor Environment Quality 1.4	A short report detailing assumptions used and results achieved.		-

Credit summary

Management Overall contribution 4.5%

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

IWM Overall contribution 22.5%

		78% ✔ Pass
1.1 Potable Water Use		70% ✔ Achieved
2.1 Stormwater Treatment		100% ✔ Achieved
3.1 Water Efficient Landscaping		0%
4.1 Building Systems Water Use		0%

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
		n/a
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		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%	54%	✔ Pass
1.4 Daylight Access - Non-Residential	68%	✔ Achieved
2.3 Ventilation - Non-Residential	33%	✔ Achieved
3.4 Thermal comfort - Shading - Non-Residential	73%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential	0%	
4.1 Air Quality - Non-Residential	100%	

Transport Overall contribution 9.0%

	14%	
1.4 Bicycle Parking - Non-Residential	0%	
1.5 Bicycle Parking - Non-Residential Visitor	100%	
1.6 End of Trip Facilities - Non-Residential	0%	⊘ Disabled
	Credit 1.4 must be complete first.	
2.1 Electric Vehicle Infrastructure	0%	
2.3 Motorbikes / Mopeds	0%	

Waste & Resource Recovery 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%

	14%	
1.1 Communal Spaces	N/A	✣ Scoped Out
	n/a	
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%

	0%	
1.1 Innovation	0%	

Credit breakdown

Management Overall contribution 4.5%

		0%

1.1 Pre-Application Meeting		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	
2.3 Thermal Performance Modelling - Non-Residential		0%
Score Contribution	This credit contributes 25% towards the category score.	
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2022 Section J4D6?	
Question	Criteria Achieved ?	
Shop	No	
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2022 Section J (Energy Efficiency), NABERS or Green Star?	
Question	Criteria Achieved ?	
Shop	No	
3.2 Metering - Non-Residential		0%
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 ?	
Shop	No	
3.3 Metering - Common Areas		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 ?	
Shop	No	
4.1 Building Users Guide		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	

IWM Overall contribution 22.5%

78% ✔ Pass

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

Stormwater profile

Which stormwater modelling software are you using?:	Melbourne Water STORM tool
STORM score achieved:	100
Flow:	-
Total Suspended Solids:	-
Total Phosphorus:	-
Total Nitrogen:	-

Rainwater tank profile

What is the total roof area connected to the rainwater tank?: Rainwater Tank 1	930 m^2
Tank Size: Rainwater Tank 1	18,000 Litres
Irrigation area connected to tank: Rainwater Tank 1	-
Is connected irrigation area a water efficient garden?: Rainwater Tank 1	No
Other external water demand connected to tank?: Rainwater Tank 1	-

Fixtures, fittings & connections profile

Building:	Shop/Cafe
Showerhead:	Scope out
Bath:	Scope out
Kitchen Taps:	>= 5 Star WELS rating
Bathroom Taps:	>= 5 Star WELS rating
Dishwashers:	Default or unrated
WC:	>= 4 Star WELS rating
Urinals:	Scope out
Washing Machine Water Efficiency:	Scope out
Which non-potable water source is the dwelling/space connected to?:	Rainwater Tank 1
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

1.1 Potable Water Use 70% ✔ 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	800 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	585 kL
Output	Proposed (including rainwater and recycled water use)
Project	419 kL
Output	% Reduction in Potable Water Consumption
Project	47 %
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	108 kL

2.1 Stormwater Treatment 100% ✔ Achieved

Score Contribution	This credit contributes 56.2% towards the category score.
Criteria	Has best practice stormwater management been demonstrated?
Output	Min STORM Score
Project	100
Output	STORM Score
Project	100

3.1 Water Efficient Landscaping 0%

Score Contribution	This credit contributes 6.2% towards the category score.
Criteria	Will water efficient landscaping be installed?
Question	Criteria Achieved ?
Project	No

4.1 Building Systems Water Use 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

Operational Energy Overall contribution 27.5%

	Minimum required 50%	72%	✔ Pass

Project profile	
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
Non-residential Deemed-to-Satisfy profile	
Do all exposed floors and ceilings (forming part of the envelope) demonstrate meeting the required NCC2022 insulation levels (total R-value upwards and downwards)?:	Yes
Does all wall and glazing demonstrate meeting the required NCC2022 facade calculator (or better than the total allowance)?:	Yes
Are heating and cooling systems within one Star of the most efficient equivalent capacity unit available, or Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available?:	Yes
Are water heating systems within one star of the best available, or 85% or better than the most efficient equivalent capacity unit?:	Yes

1.1 Thermal Performance Rating - Non-Residential		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)?	
2.1 Greenhouse Gas Emissions		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?	
2.2 Peak Demand		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?	
2.6 Electrification		100%
Score Contribution	This credit contributes 13.6% towards the category score.	
Criteria	Is the development all-electric?	
Question	Criteria Achieved?	
Project	Yes	
2.7 Energy consumption		100%

Score Contribution	This credit contributes 18.2% towards the category score.
Criteria	What is the % reduction in annual energy consumption against the benchmark?

3.1 Carpark Ventilation — N/A — Scoped Out

n/a

This credit was scoped out	n/a

3.2 Hot Water — 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?

3.7 Internal Lighting - Non-Residential — 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 ?
Shop	Yes

4.1 Combined Heat and Power (cogeneration / trigeneration) — N/A — Scoped Out

No cogeneration or trigeneration system in use.

This credit was 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.

This credit is 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.

This credit was scoped out	No other (non-solar PV) renewable energy is in use.

IEQ Overall contribution 16.5%

	Minimum required 50%	54%	✔ Pass

1.4 Daylight Access - Non-Residential		68%	✔ 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?		
Shop	68 %		
2.3 Ventilation - Non-Residential		33%	✔ 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?		
Shop	-		
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?		
Shop	50 %		
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?		
Question	Value		
Shop	-		
3.4 Thermal comfort - Shading - Non-Residential		73%	
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?		
Shop	61 %		
3.5 Thermal Comfort - Ceiling Fans - Non-Residential		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?		
Shop	-		
4.1 Air Quality - Non-Residential		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 ?
Shop	Yes

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

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

Transport Overall contribution 9.0%

14%

1.4 Bicycle Parking - Non-Residential		0%
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 ?	
Shop	No	
Question	Bicycle Spaces Provided ?	
Shop	-	

1.5 Bicycle Parking - Non-Residential Visitor		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 ?	
Shop	Yes	
Question	Bicycle Spaces Provided ?	
Shop	-	

1.6 End of Trip Facilities - Non-Residential		0% ⊘ Disabled
		Credit 1.4 must be complete first.
This credit is disabled	Credit 1.4 must be complete first.	

2.1 Electric Vehicle Infrastructure		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	

2.3 Motorbikes / Mopeds		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 & Resource Recovery **Overall contribution 5.5%**

66%

1.1 Construction Waste - Building Re-Use	0%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	If the development is on a site that has been previously developed, has at least 30% of the existing building been re-used?
Question	Criteria Achieved ?
Project	No
2.1 Operational Waste - Food & Garden Waste	100%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	Yes
2.2 Operational Waste - Convenience of Recycling	100%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are the recycling facilities at least as convenient for occupants as facilities for general waste?
Question	Criteria Achieved ?
Project	Yes

Urban Ecology Overall contribution 5.5%

	14%

1.1 Communal Spaces		N/A	Scoped Out
			n/a
This credit was scoped out	n/a		
2.1 Vegetation			25%
Score Contribution	This credit contributes 57.1% towards the category score.		
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area?		
Annotation	At least 7%(183.4) of the assessment site is covered by vegetation.		
Question	Percentage Achieved ?		
Project	7 %		
2.2 Green Roofs			0%
Score Contribution	This credit contributes 14.3% towards the category score.		
Criteria	Does the development incorporate a green roof?		
Question	Criteria Achieved ?		
Project	No		
2.3 Green Walls and Facades			0%
Score Contribution	This credit contributes 14.3% towards the category score.		
Criteria	Does the development incorporate a green wall or green façade?		
Question	Criteria Achieved ?		
Project	No		
3.2 Food Production - Non-Residential			0%
Score Contribution	This credit contributes 14.3% towards the category score.		
Criteria	What area of space per occupant is dedicated to food production?		
Question	Food Production Area		
Shop	-		
Output	Min Food Production Area		
Shop	14 m²		

Innovation Overall contribution 9.0%

	0%

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

Disclaimer

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