

ESD Statement

**117 Separation Street,
Bell Park**

17th August 2026

Admin@msconsultants.com.au

**Melbourne
Sustainability
Consultants.**

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Document History

Version	Date	Status	Author	Approved
0	17/08/2026	First Issue	DM	JO
1	17/08/2026	Updated as per client's comments	DM	JO

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Introduction & Council's Requirements

Melbourne Sustainability Consultants has been commissioned to provide guidance on achieving environmentally Sustainable Development outcomes for the proposed industrial development located at 117 Separation Street, Bell Park.

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 186m² site is located at 117 Separation Street, Bell Park within Greater Geelong local authority. The site is currently vacant as shown below:



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

The proposal consists of development of the site into a two-storey shop/office development and associated with a car parking.

ESD Assessment Tools

The proposed development is less than 300sqm GFA therefore it does not trigger the requirement to prepare a full SDA report including BESS assessment. This proposed ESD statement addressed clause 15.01-2L objectives and strategies and should be sufficient to demonstrate compliance with best practice.

BLUE FACTOR

The BLUE FACTOR calculator is a tool developed by The Department of Energy, Environment and Climate Action (DEECA) and Microburst Software 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. Blue Factor is the successor to STORM and can already be used to replace it as an accepted tool.

The BLUE FACTOR assessment can be found in Appendix 1 of this report.

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
Water Efficiency	Minimum WELS rating of fittings and fixtures: 4 Star Toilets / 5 Star Taps / 5-Star Dishwasher
	A 2,000L tank collecting water from the entire roof – Water to be used for toilet
Energy Efficiency	NCC 2025 section J commitment to meet requirement
	Illumination power densities to meet NCC 2025 section J7D3 requirements
	Sensors (motion, daylight, timers) for external and common area lighting
	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
Stormwater	A 2,000L tank collecting water from the entire roof – Water to be used for toilet
IEQ	All paint, adhesives, sealants and flooring to be low VOC – refer to Appendix 3 for limits
	All engineered wood will be low formaldehyde with E0 or better certification
	Glazing with VLT targeting 40% VLT or more
Transport	bike space for staff
Waste	4-bin system (Rubbish, Recycling, FOGO, Glass)
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
Metering and Monitoring	Separate utility meters (water and electricity) will be provided.
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.
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.

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
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) All appliances provided as part of the based building will be chosen within one WELS star of the best available: • 5-Star Dishwasher
Rainwater Collection and use	The entire roof will have rainwater runoff collected and stored in a 2,000L tank. Rainwater collected will be utilised for toilet flushing, significantly reducing the development's stormwater impact and aiding in compliance with the BlueFactor calculator (refer to Appendix 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
NCC Section J Commitment	A section J (NCC 2025) DTS assessment will occur for the development (prior to construction) with the following commitments: • NCC 2025 floor and ceiling insulation levels (Total R-Value); • Wall insulation and glazing system within NCC 2025 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 a 'reference building'. 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.

Initiative	Description
Hot water System	An electric instantaneous, heat pump or storage system will be installed. 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.
HVAC System	Heating and cooling will be provided with VRF, split systems 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.
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 2025 part J7D3. Additionally, the utilisation of light internal colours will enhance daylight penetration, leading to a decreased reliance on artificial lighting.
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.

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
Stormwater Treatment	The entire roof will have rainwater runoff collected and stored in a 2,000L tank. Rainwater collected will be utilised for toilet flushing, significantly reducing the development's stormwater impact and aiding in compliance with the BLUE FACTOR calculator (refer to Appendix 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
Daylight Access Office	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 office which will increase natural light access. Windows will be provided on multiple façades wherever possible and room depth will be limited to improve daylight access even further. The office has achieved best practice requirement as demonstrated in the daylight hand calculation prepared in Appendix 5. The shop typically cannot achieve usual daylight access requirement due to their layout and the use of dedicated artificial lighting to display specific product. Additionally, it is also used for storing product and other perishable which should not be stored in daylight for better preservation.

Initiative	Description
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. 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
Staff Bike Parking	The development will be provided with bicycle park for staff.

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
Operational Waste	The development will be provided with a four-bins system including general, recycling, food & organic (FOGO) and glass waste. This is in line with the Victorian recycling policy for 2030. 

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
Vegetated Area	The proposed development will be proposed with landscaped areas. This will provide an enjoyable working environment. 5.1% of the entire site area will be vegetated based on current drawings. The exact coverage will be confirmed within landscape drawings.

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
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).
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).
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).

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 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 – 10% improvement on floor and ceiling minimum insulation	Section J Consultant	Design Development
Hot Water System chosen within one star	Services Engineer Architect	Design Development
HVAC System chosen within one star	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
Low VOC and Low Formaldehyde Products	Architect Head Contractor	Design Development Construction
Bike space for staff	Architect	Design Development
Four-bin system	Architect Waste Consultant	Design Development
Timber commitment to certified plantations	Architect Head Contractor	Design Development
Steel commitment to responsible steel maker	Architect Head Contractor	Design Development

Initiative	Responsibility	Stage
Timber commitment to certified plantations	Architect Head Contractor	Design Development



Appendix 1 – WSUD Report

To address Clause 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 best practice water quality performance objectives for stormwater quality specified in the Urban stormwater management guidance (EPA Publication 1739.1, 2021). 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 BlueFactor 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. **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 186m². The following treatment will be implemented on-site:

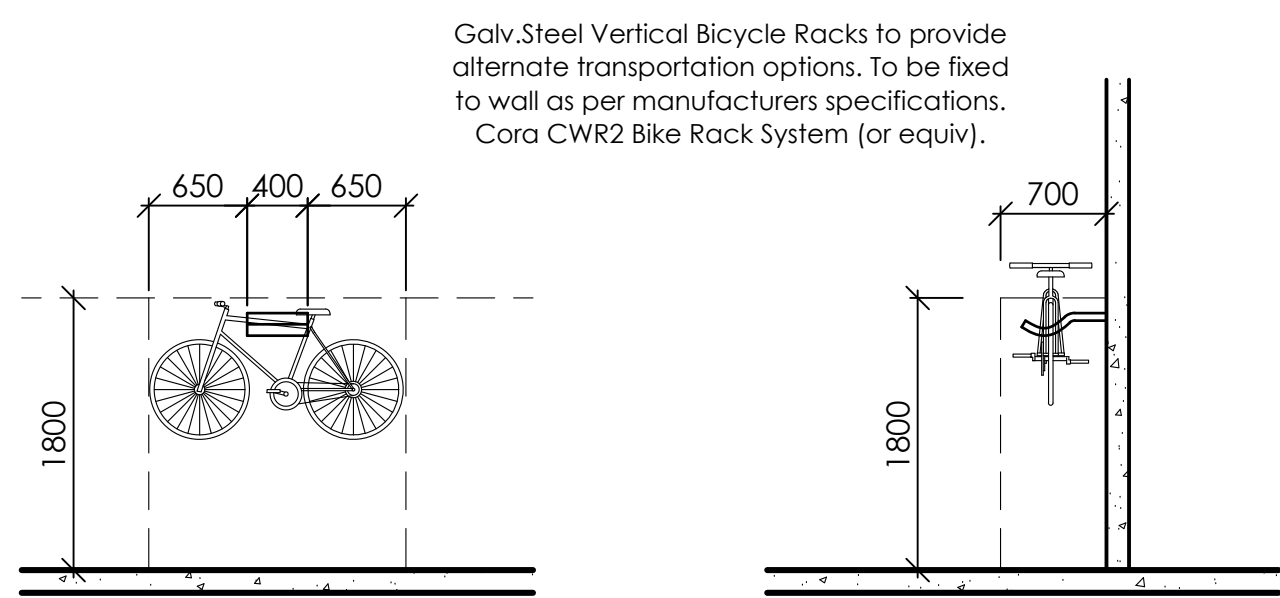
Surface	Treatment	Area	Description
Roof	Rainwater Tank	149.9m ²	The entire roof runoff will be diverted into a 2,000L rainwater tank. The rainwater will be used for toilet flushing. Rainwater collection might require the implementation of a charged pipe system that <u>cannot be running underneath the building footprint</u>.

Surface	Treatment	Area	Description
Permeable Areas	No treatment	11.8m ²	Part of the site will be designed as permeable. This will include landscape areas.
Untreated Impervious Areas	No treatment	24.3m ²	Part of the site will be left untreated before being released at the legal point of discharge. This will include the entire driveway and car parking space.

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.

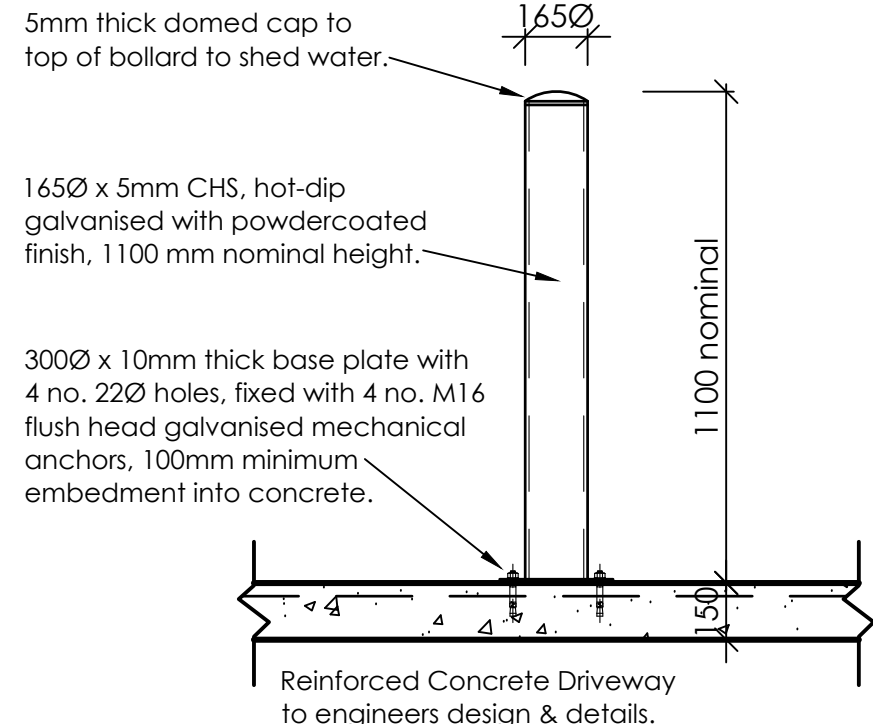
2. WSUD Catchment Plan

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



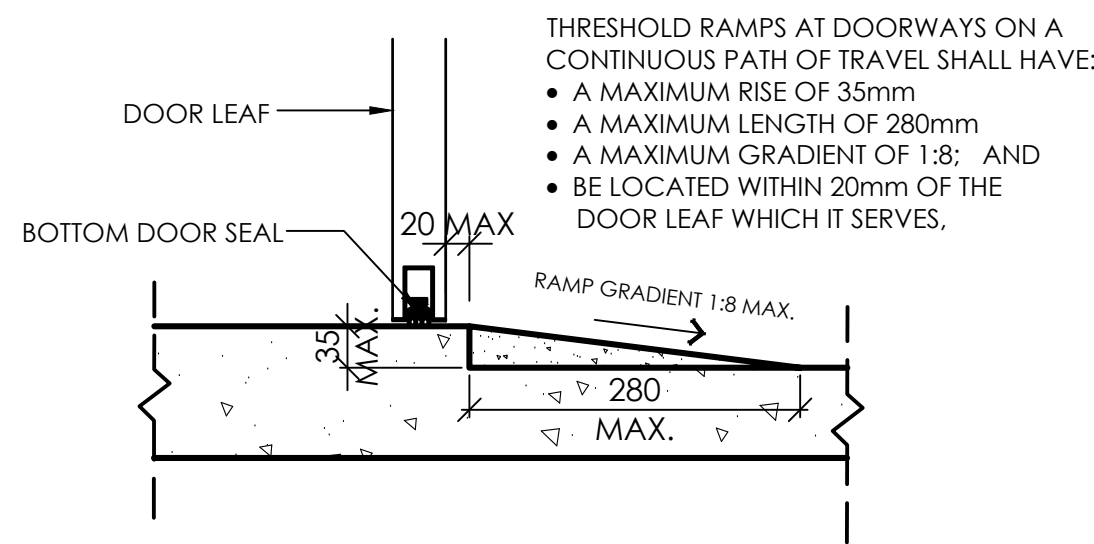
TYPICAL BIKE RACK DETAIL

N.T.S.



TYPICAL BOLLARD DETAIL

N.T.S.



THRESHOLD RAMP DETAIL

N.T.S.

ENERGY EFFICIENCY & SUSTAINABILITY NOTES:

Building to comply with NCC 2025 Volume One Section J, approved Section J assessment, ESD Statement, WSUD documentation and relevant consultant requirements.

Building fabric, insulation and glazing to comply with NCC Section J. Provide minimum 10% improvement above NCC 2025 minimum floor and ceiling insulation Total R-Values.

HVAC and electric hot water systems to be selected within one star of the best available product in the relevant range, or within the most efficient 15% where no star rating applies.

Provide LED lighting throughout in accordance with NCC Section J. External lighting, common areas and intermittently occupied spaces to incorporate motion, daylight and/or timer controls where applicable.

Provide minimum 2,000 L rainwater tank collecting runoff from the entire roof area for reuse in toilet flushing. Provide overflow and connections in accordance with approved WSUD and hydraulic documentation.

Minimum WELS ratings where provided: Toilets 4 Star; Taps 5 Star; Dishwasher 5 Star.

Provide separate water and electricity utility metering.

Glazing to target minimum 40% Visible Light Transmittance (VLT). Use light internal finishes where practical to assist daylight penetration.

Provide low-VOC paints, adhesives, sealants and flooring in accordance with the approved ESD Statement. Engineered wood products to be certified E0 or better.

Provide staff bicycle parking and four-bin operational waste facilities comprising general waste, recycling, FOGO and glass.

No rainforest timber to be used. Timber framing, where provided, to be FSC, PEFC or AFS certified. Steel to be sourced from an ISO 14001 certified responsible steel maker. Carpet and underlay to have recognised third-party sustainable certification.

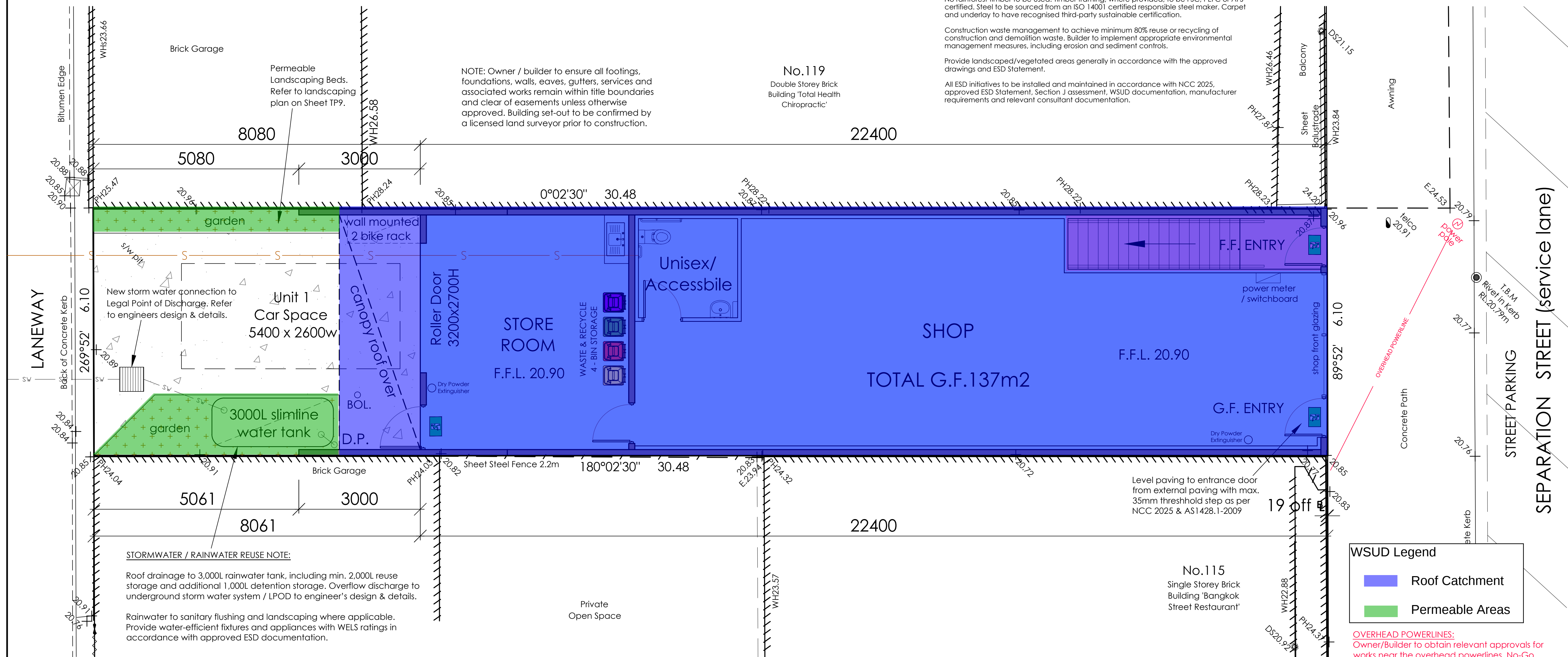
Construction waste management to achieve minimum 80% reuse or recycling of construction and demolition waste. Builder to implement appropriate environmental management measures, including erosion and sediment controls.

Provide landscaped/vegetated areas generally in accordance with the approved drawings and ESD Statement.

All ESD initiatives to be installed and maintained in accordance with NCC 2025, approved ESD Statement, Section J assessment, WSUD documentation, manufacturer requirements and relevant consultant documentation.

SITE ANALYSIS

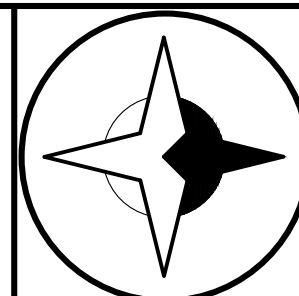
TOTAL SITE AREA	= 186 m2
TOTAL GROUND FLOOR AREA	= 137 m2
TOTAL FIRST FLOOR AREA	= 90 m2
TOTAL FLOOR AREA	= 227 m2
73 % TOTAL COVERAGE OF SITE	
PERMEABLE LANDSCAPING AREA	= 11.3 m2 / 6%



PROPOSED SITE PLAN

Note: These drawings are to be read in conjunction with structural & civil engineering, fire service and fire engineering design & details.

PROPOSED MIXED USE DEVELOPMENT at
No. 117 SEPARATION STREET, BELL PARK for
VDC GROUP P/L



PO Box 938 | Bacchus Marsh | VIC 3340
m: 0403 196 133 | e: justin@briclok.com.au
VIC Registered Building Practitioner: DP-AD 25793
TAS Licensed Building Services Provider: 264632134
THIS PLAN REMAINS THE INTELLECTUAL PROPERTY & COPYRIGHT OF
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PERMISSION OF BRICLOK BUILDING DESIGN P/L

PROPOSED SITE PLAN

revision			drawing number	
			TP3	
designed/drawn	date	scale	job number	
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3. WSUD Assessment Results

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 in the introduction.

Occupancy is assumed to be one person in the shop and three people in the office.

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

Please note that mean annual runoff volume infiltrated cannot be achieved in Blue Factor since permeable areas (where water could infiltrate) are not considered in the calculation. Permeable areas are only input in catchment to demonstrated that all areas on site have been accounted for. This was confirmed by blue Factor developer.

TSS has not achieved full compliance as it is difficult to achieve compliance with these requirements on these types of projects where TSS pollutant is already low. Reducing significantly the level of something that is already very low is complicated. This is in line with DEECA's position as clearly noted in the BlueFactor report first page.

Project # 6C352D7B
117 Separation Street, Bell Park
Denis Mallet - denis@msconsultants.com.au
117 Separation St, Bell Park VIC 3215
14 August 2026 4:00 p.m.



117 Separation Street, Bell Park

Nitrogen reduction target has been met, and a small low-risk project is deemed to comply. Higher risk projects need to meet all targets.



Project details

Name	117 Separation Street, Bell Park
Project ID	6C352D7B
Street address	117 Separation St, Bell Park VIC 3215
Municipality	Greater Geelong
Site area	186 m ²
Planning Number	

Results

Item	Result	Target
Total suspended solids (%)	60%	>80%
Total phosphorus (%)	54%	>45%
Total nitrogen (%)	45%	>45%
Total gross pollutants (%)	84%	>70%
Mean annual runoff volume harvested or evapotranspired (%)	41%	>32%
Mean annual runoff volume infiltrated or filtered (%)	0%	>3%

For small low-risk sites, Total Nitrogen has been used as a proxy for other pollutants indicating compliance has been adequately met for many years. This has meant that if the Blue Factor score meets 100% based on Nitrogen, the Responsible Authority has the discretion to accept stormwater management design responses that do not meet all the individual pollutant load reduction targets on small low-risk sites.

Larger, high-risk projects, with roads, car parks or activities that may yield higher than typical pollutant loads, must meet all water quality targets fully. All projects should manage flow volume reductions through harvesting and evapotranspiration as well as infiltration to a level that is reasonably practicable.

Additional considerations

Flow and other pollutant load reductions should also be considered. The EPA Urban stormwater management guidelines (EPA - Publication 1739.1) are referenced in the VPPs as a policy document and support compliance with the General Environmental Duty.

You can use the guidelines to help minimise risks from urban stormwater so far as reasonably practicable (epa.vic.gov.au/about-epa/laws-ew-laws/what-is-reasonablypracticable). Doing what is reasonably practicable means putting in proportionate controls to minimise the risk of harm to human health and the environment relative to the values being protected and risks presented by the site.

A completed small-scale low risk site with no public roads or external user parking areas will usually generate very little sediment, referred to as total suspended solids (TSS). It is common that the 80% TSS target will not easily be achieved for this type of site.

Other sites may generate significant total suspended solids (TSS) as well as litter, referred to as gross pollutants and should meet all targets.

The generation of sediment and litter during the construction phase is a significant problem and must be addressed effectively for all developments.

You should demonstrate what appropriate controls will be used to ensure the generation of litter and sediment is prevented and controlled during construction to minimise risk of harm.

Blue Factor is designed to support a range of developments of less than 10,000 square metres including small scale residential, apartment developments, small scale commercial and small public use developments which must meet planning requirements including stormwater management quality objectives in the EPA Urban stormwater management guidelines (EPA - Publication 1739.1) It is recommended that MUSIC is used for larger and more complex projects to demonstrate compliance.

Configuration 1



Roof 149.9m2



Rainwater Tank 1
Rainwater tank retention volume in kilolitres: 2



Shop/office
Non-Residential BCA Class 5 - Commercial/Office,
4 employee(s)

Catchments



Roof 149.9m2



Permeable Areas Pervious (garden and lawn), 11.8m2



Untreated Impervious Areas Paved, 24.3m2 Untreated

Treatments



Rainwater Tank 1 117%
Rainwater tank retention volume in kilolitres: 2



Shop/office
Non-Residential BCA Class 5 - Commercial/Office,
4 employee(s)

Water sources	I want to use the average efficiency for a typical new dwelling or building
Basin taps - Primary water source	Mains water
Showers - Primary water source	Mains water
Clothes Washer - Primary water source	
Urinal - Primary water source	
Urinal - Efficiency	
Toilets connected to mains water	0
Toilets connected to rainwater	2
Toilets connected to recycled water	0
Garden water use	Garden water demands are not in use

4. Proposed Treatment Typical Cross-Section

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

a. Rainwater Tanks

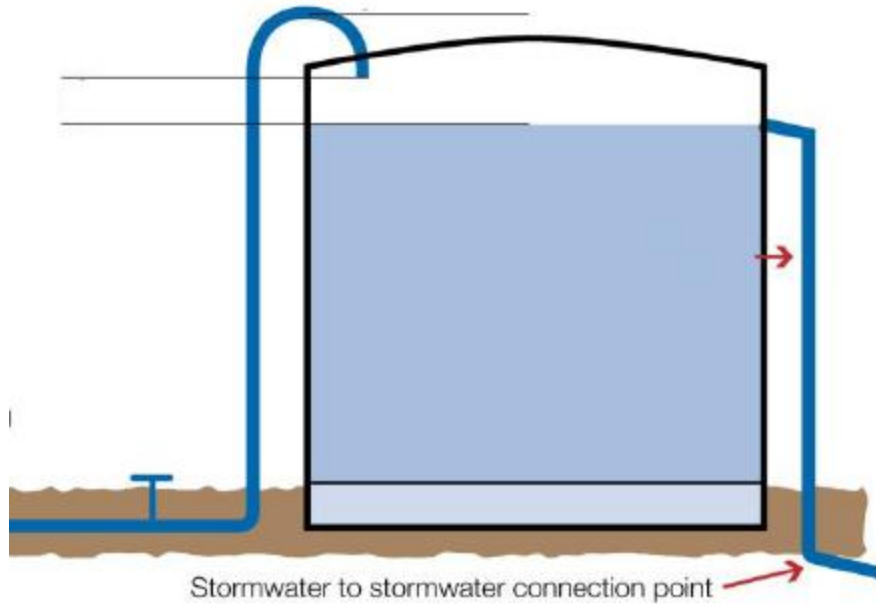
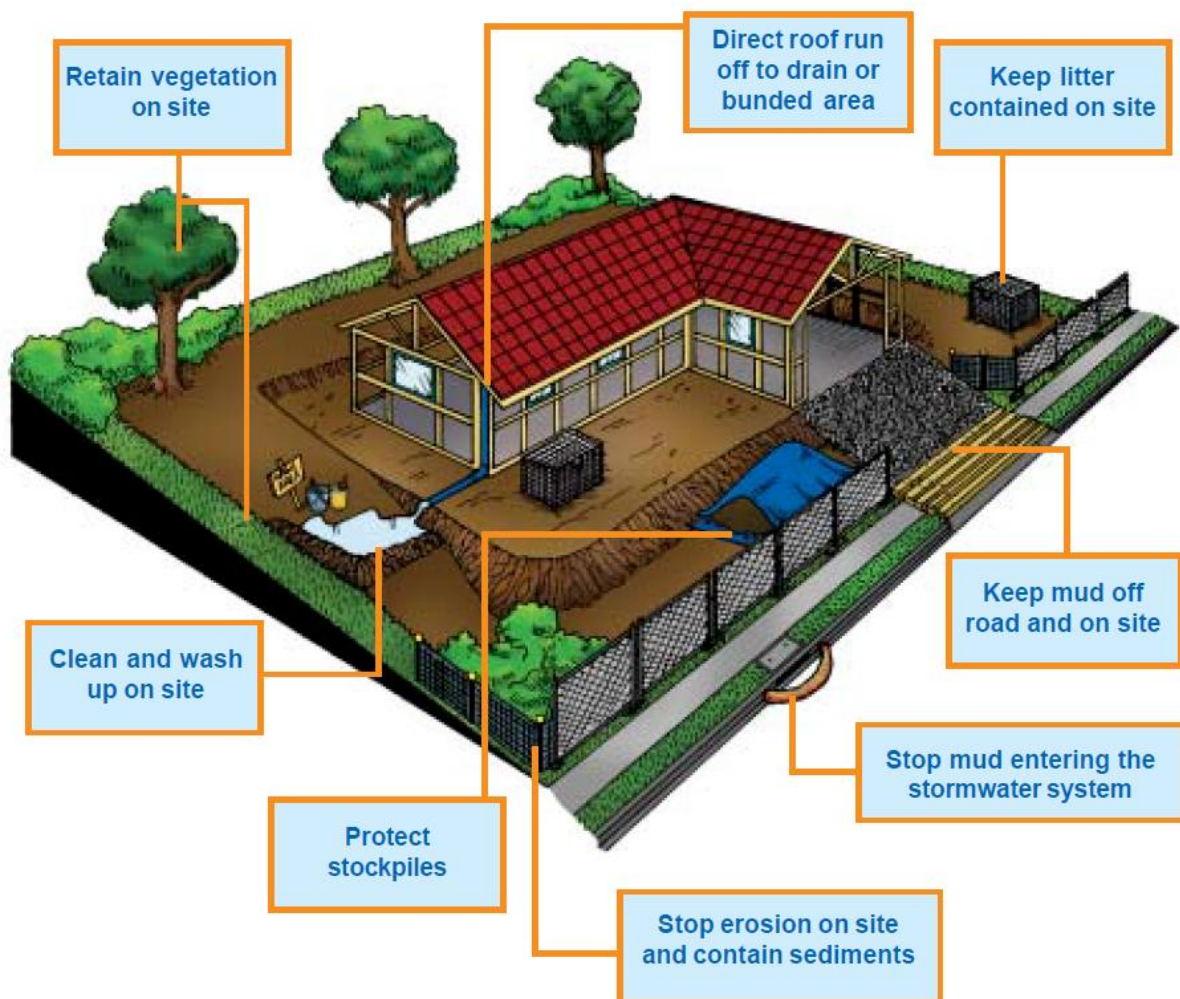


Figure 2: Typical Rainwater tank Cross-Section

5. 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.

Check Council requirements and plan before you start work on site





Appendix 2 – WSUD Maintenance Manual



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	



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:

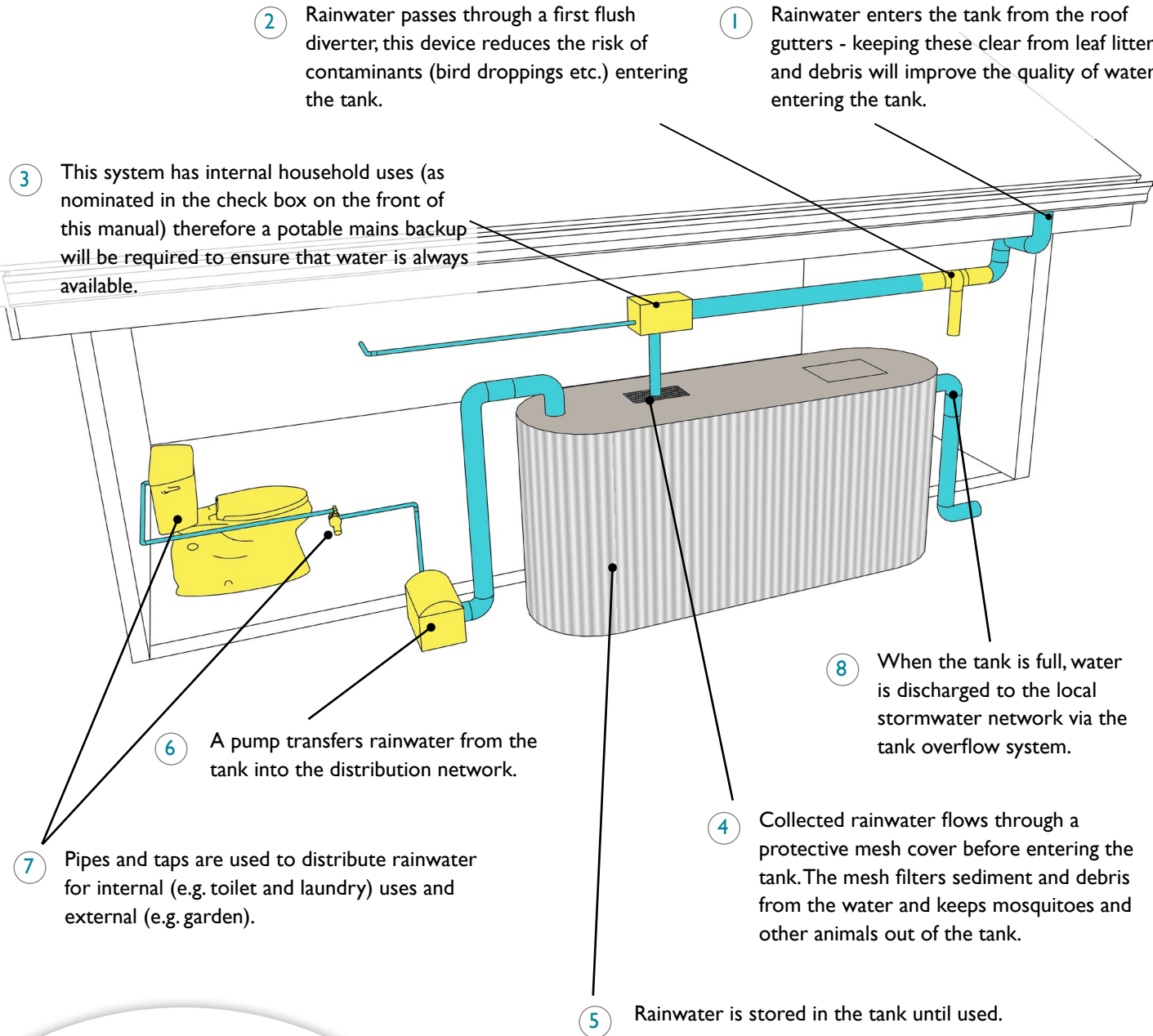
Phone: 03 9209 6777
email: sustainabledesign@portphillip.vic.gov.au



Maintenance 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 deteriorated 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



A decorative vertical band on the left side of the page, featuring a repeating pattern of blue and yellow geometric shapes (circles, squares, and wavy lines) on a white background.

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/m ² 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 – Preliminary Façade Calculator

NCC 2022 Wall-Glazing Calculator v3.3 (Open-source)

City of Greater Geelong, Statutory Planning - Date Received 19/08/2028

Wall and glazing energy efficiency in Class 2-9 buildings - Method 2 of NCC 2022

Building name and description

117 Separation Street, Bell Park

Classification

Other

Climate Zone

6

Calculated Area-Weighted U-Value	1.03
Allowable Area-Weighted U-Value	2.00
Building total U-Value allowance met	52%

Calculated Representative Air-Conditioning Energy Value	8.0
Allowable Representative Air-Conditioning Energy Value	8.1
Building total SHGC allowance met	100%

Wall Element Requirements

Met

Display Glazing Element Requirements

Met

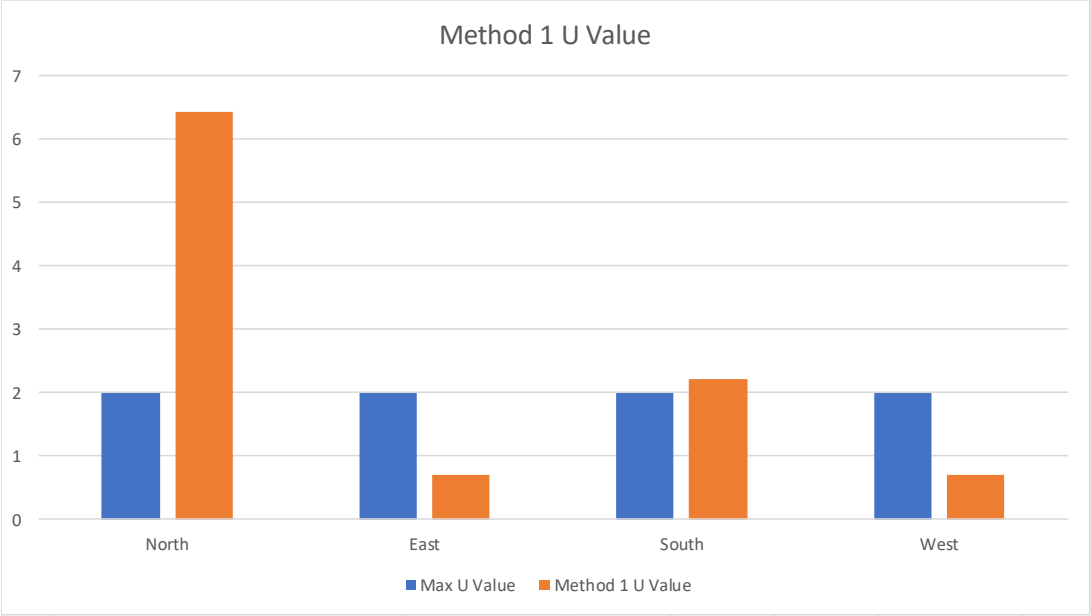
Check Values

Visible

8

Rows

Element Description							U-Value		SHGC and Shading				
ID	Description (optional)	Element Type	Facing Sector	Width (m)	Height (m)	Area (m²)	U-Value	U-Value Element share of allowance used	SHGC	Glazing Height (m)	H - Shading Height (m)	P - Shading Projection (m)	SHGC Element share of allowance used
1	North Wall	Wall	North			9.99	0.71	3% of building total					Not counted
2	West Wall	Wall	West			35.64	0.71	10% of building total					Not counted
3	East Wall	Wall	East			93.42	0.71	25% of building total					Not counted
4	South Wall	Wall	South			11.42	0.71	3% of building total					Not counted
5	Internal Wall	Wall	Internal			86.40	0.71	23% of building total					Not counted
6	North Display Glazing - GF	Display Glazing	North			11.53	5.80	Not counted	0.81				Not counted
7	North Glazing - FF	Glazing	North			11.53	5.60	25% of building total	0.272				83% of building total
8	South Display Glazing	Glazing	South			5.10	5.60	11% of building total	0.272				17% of building total





Appendix 5 – Daylight Hand Calculation

Daylight access in the office 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 office. See below for a mark-up of nominated areas (blue) and compliant areas (orange):

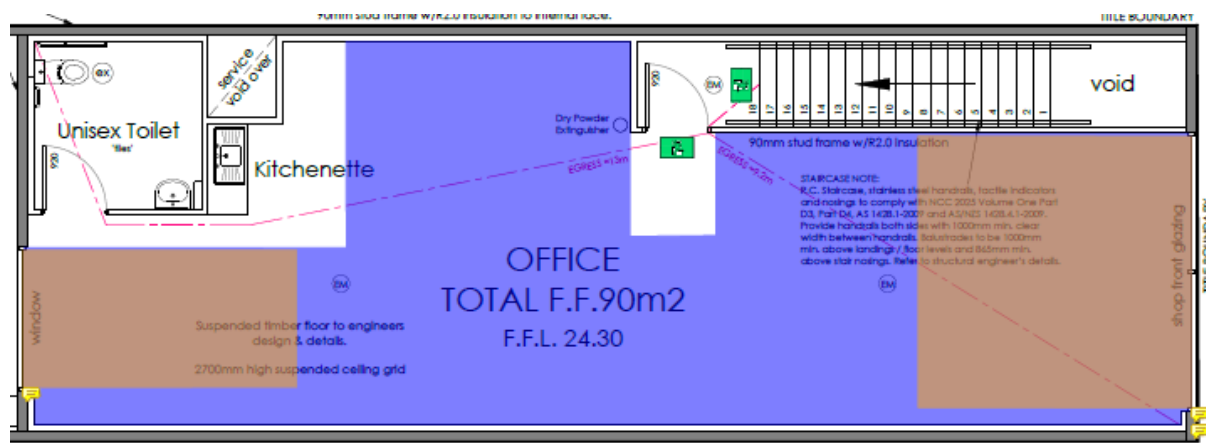


Figure 2: Daylight Hand Calculation mark-up.

Note the below table represents daylight performance outcomes.

Space Type	Nominated Area (m ²)	Floor Area Compliant (m ²)	Compliant Areas (%)
Office	68.7	23.9	
TOTAL	68.7	23.9	35%