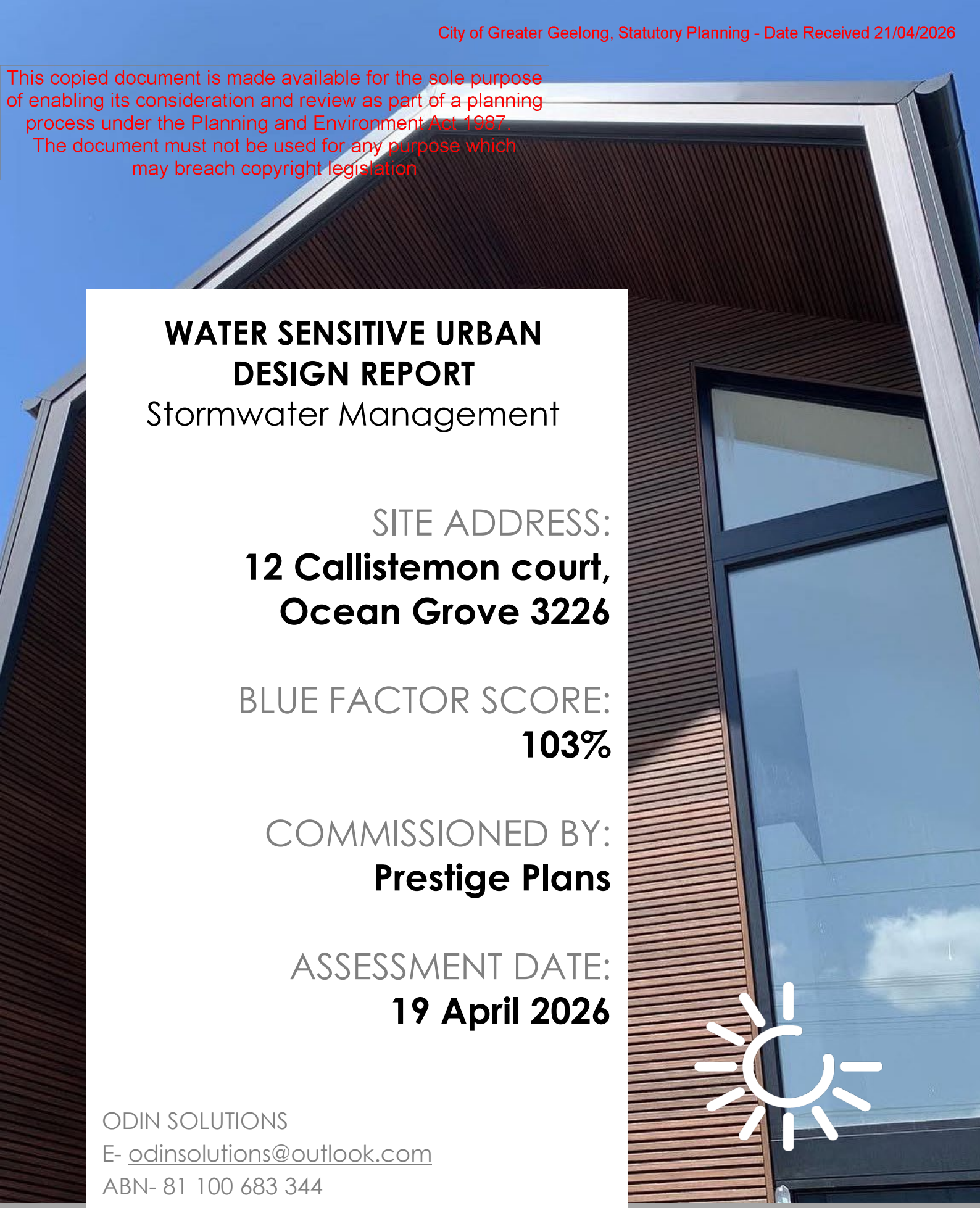

WATER SENSITIVE URBAN DESIGN REPORT

Stormwater Management

SITE ADDRESS:

12 Callistemon court, Ocean Grove 3226

BLUE FACTOR SCORE:

103%

COMMISSIONED BY:

Prestige Plans

ASSESSMENT DATE:

19 April 2026

ODIN SOLUTIONS
E- odinsolutions@outlook.com
ABN- 81 100 683 344
NatHERS Accreditation Number: HERA10312

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1 INTRODUCTION

The following Water Sensitive Urban Design report has been prepared by Odin Solutions to provide an overall and a wider approach to assessing the sustainability of the proposed development.

1.2 STATUTORY FRAMEWORK

Greater Geelong City Council encourages the inclusion of WSUD initiatives within the design process of new developments, which will result in more sustainable buildings within the community. One protocol is applying the Stormwater Treatment Objective-Relative Measure (STORM) developed by Melbourne Water.

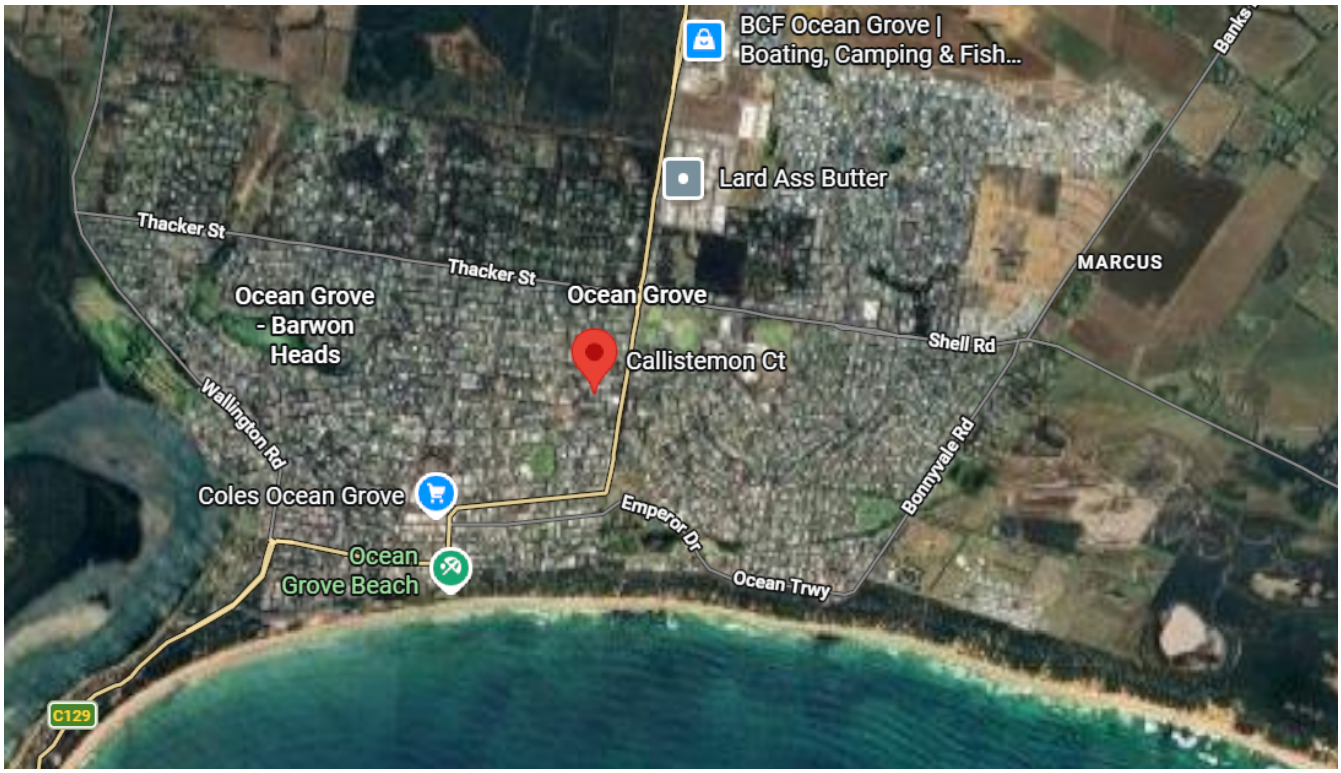
Odin Solutions have been engaged to undertake a Water Sensitive Urban Design report for the proposed townhouses located at 12 Callistemon court, Ocean Grove.

The WSUD report displays the amount of treatment that is required to meet best practice targets, using WSUD treatment measures. The tool is capable of calculating the performance of a range of commonly implemented treatment measures including;

- Rainwater tanks
- Ponds
- Wetlands
- Rain gardens
- Infiltration systems
- Buffers and
- Swales

1.3 Site and Development Description

The subject property is located within Ocean Grove, a suburb within the domains of Greater Geelong City Council. The site measures roughly 833m^2 whereby an existing single storey dwelling is present. The proposed development will consist of two single storey townhouses.



Aerial view of the proposed development

2 WSUD ASSESSMENT TOOLS

There are a number of calculators and modelling programs available to help assess proposed developments against benchmarks set by the Victorian State Government, City Councils and the Building Code of Australia. This report has utilised the 'Blue Factor' calculator, which analyses stormwater treatment onsite.

2.2 (STORM) BLUE FACTOR

Stormwater Treatment Objective – 'Blue Factor' is the successor to (STORM) which was developed by Melbourne Water to simplify the analysis of stormwater treatment methods within a development. The calculator assesses Water Sensitive Urban Design (WSUD) measures on project sites and delivers a percentage result, determining whether best practice targets have been achieved. A score of 100% or higher means the treatment features meet all objectives.

3 WSUD ACHIEVEMENTS

The following tables outline the scores achieved in each assessment tool used. This development has achieved a 'Pass' score in each.

BLUE FACTOR RATINGS		
	Required Score	Project Score
Blue Factor Score	100%	103%

Project # 9ACF24AA
V3: 12 Callistemon court, Ocean Grove
Erkan Munur - odinsolutions@outlook.com
12 Callistemon Ct, Ocean Grove VIC 3226, Australia
19 April 2026 3:14 p.m.

BLUE FACTOR.

12 Callistemon court, Ocean Grove

The proposed stormwater treatments provide 'deemed to comply' compliance with the minimum planning requirement for total nitrogen but does not comply with all the relevant objectives for management of stormwater flows on-site.

103% SCORE

Project details

Name	V3: 12 Callistemon court, Ocean Grove
Project ID	9ACF24AA
Street address	12 Callistemon Ct, Ocean Grove VIC 3226, Australia
Municipality	Greater Geelong
Site area	833.87 m^2
Planning Number	

Flow and pollutant load reductions

Item	Result	Target
Mean annual runoff volume harvested or evapotranspired (%)	45%	>32%
Mean annual runoff volume infiltrated or filtered (%)	0%	>3%
Total suspended solids (%)	52%	>80%
Total phosphorus (%)	50%	>45%
Total nitrogen (%)	46%	>45%
Total gross pollutants (%)	63%	>70%

4 WATER SENSITIVE URBAN DESIGN (WSUD) RESPONSE

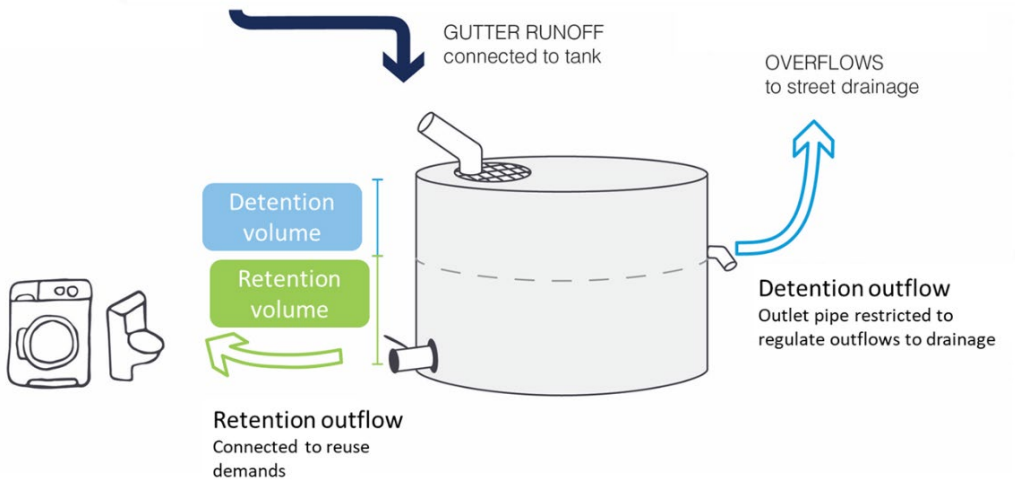
DESIGN REQUIREMENT	PRIMARY WATER SOURCE	EFFICIENCY (RATING)
INDOOR WATER FIXTURES, FITTINGS & CONNECTIONS		
BASIN TAPS	**MAINS WATER**	5-star WELS
SHOWER TAPS	**MAINS WATER**	3-star WELS (> 6.0 but < 7.5 litres per minute
CLOTHES WASHER	**RAINWATER**	3-star WELS (minimum requirement)
TOILETS CONNECTED TO MAINS WATER	**0**	
TOILETS CONNECTED TO RAINWATER	**2/2**	
TOILETS CONNECTED TO RECYCLED WATER	**0**	
TOILETS EFFICIENCY		4-star WELS

Rainwater will be collected from each roof area and stored in separate 3000L rainwater tanks located to the rear of each dwelling. The rainwater will be used to flush toilets and be connected to laundry water stops throughout the development.

Rainwater tank overflows, and any residual flows drain to the LPD via the internal drainage system.

Reducing potable (mains) water consumption through a rainwater collection and re-use scheme ensures cost savings and the efficient use of water.

Additional information is provided in Appendix A – (STORM) Blue Factor report and Appendix B – WSUD maintenance and installation.



Melbourne Water recommends that proposed developments provide a Water Sensitive Urban Design Response with the following objectives (as outlined in Clause 22.18 Stormwater Treatment Policy):

- To improve stormwater discharge quality:
  - 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% retention of typical urban annual load
- To promote stormwater re-use
- To mitigate the detrimental effect of development on downstream waterways
- To reintegrate urban water into the landscape to facilitate benefits such as microclimate cooling, local habitat and provision of attractive spaces for community use and well-being
- To minimise peak stormwater flows and stormwater pollutants.

A development is required to demonstrate that it meets the objectives of the clause by either:

- Meeting a 100% or higher rating on the 'Blue Factor' rating tool; or
- Meeting the required discharge quality using the MUSIC rating tool

Additionally, adequate maintenance and management procedures are required to ensure the stormwater treatment/ reuse measures work as intended.

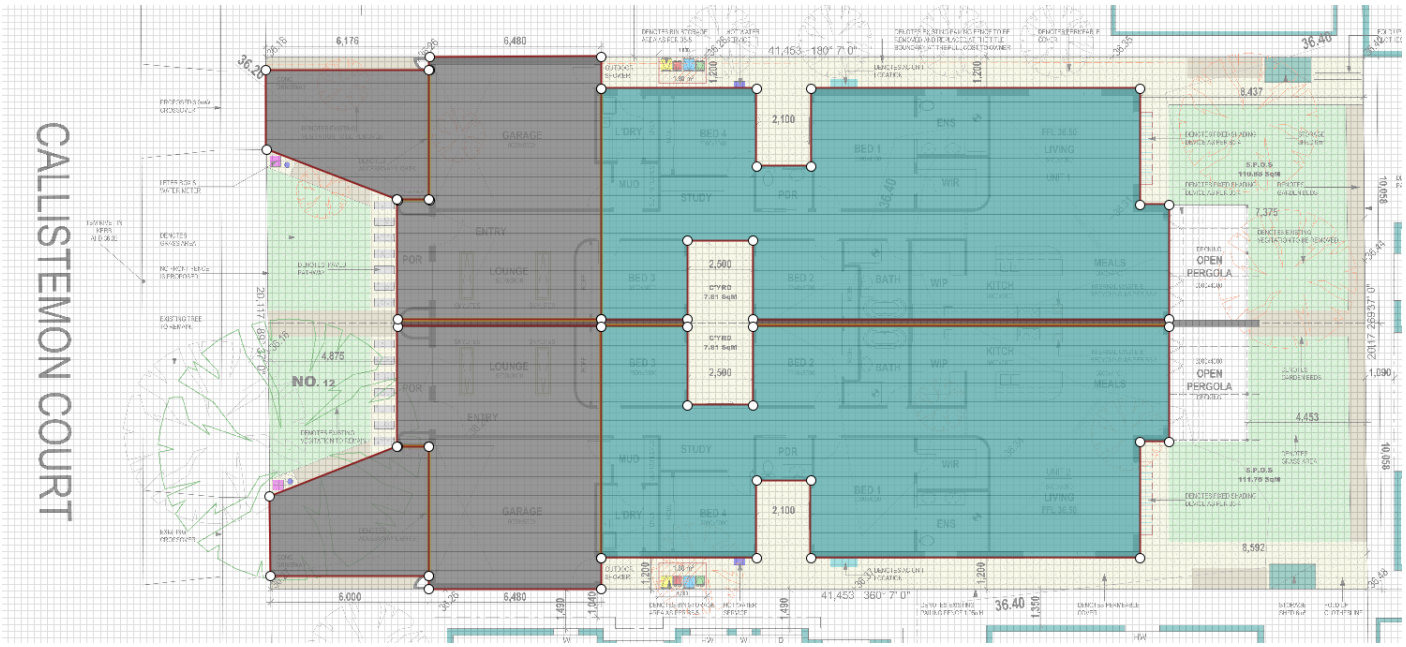
In the case of a charged pipe system, the pipes will not be running underneath the slab and the stakeholders (builder/ developer/ architect) will be required to explicitly acknowledge the solution and have the capacity to install it.

4.2 (STORM) Blue Factor Assessment

A Melbourne Water 'Blue Factor' assessment on the property has been undertaken in order to demonstrate compliance with best practice stormwater treatment objectives as set out in the Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO, 1997).

Stormwater Treatment Objective – 'Blue Factor' is the successor to STORM (STORM) which was developed by Melbourne Water to simplify the analysis of stormwater treatment methods within a development. The calculator assesses Water Sensitive Urban Design (WSUD) measures on project sites and delivers a percentage result, determining whether best practice targets have been achieved. A score of 100% or higher means the treatment features meet all objectives.

RAINWATER CATCHMENT AREAS



LEGEND

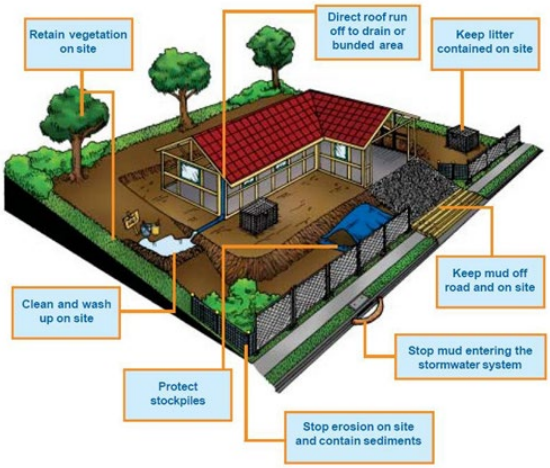
	DESCRIPTION	QUANTITY	UNIT
	DWELLING 1 RWT	169.30	m²
	DWELLING 2 RWT	169.30	m²
	UNTREATED ROOFING AREAS	140.10	m²
	DWELLING 1 DRIVEWAY	25.40	m²
	DWELLING 2 DRIVEWAY	24.70	m²
	GARDEN/ PREVIOUS AREAS	305.07	m²

4.3 Construction Site Management Plan

The following requirements are to be met during onsite works to prevent excessive pollutants entering the local waterways.

- Temporary drains are to be installed to minimise overland water flows and prevent erosion, especially in areas where water is likely to pool;
- Temporary silt fences are to be installed on the lower end of the site to prevent excessive sedimentation from entering the stormwater system;
- Temporary side entry filters to be installed to council stormwater pits to prevent sediment entering the stormwater system at the kerb inlet;
- Stockpiles to be located away from the predominant overland stormwater pathway;
- All site litter to be collected and placed in bins (covered if appropriate) so that it cannot end up in the stormwater systems;
- Waste bins to be provided onsite for workers; and
- A crushed rock area inside the site at the vehicle access point.

The builder will follow the process outlined in "Keeping Our Stormwater Clean - A Builder's Guide".



Copies of "Keeping Our Stormwater Clean – A Builder's Guide" booklet can be obtained by downloading from the following link.
https://share.google/G202vfF73M95DZDEy

5 MANAGEMENT, MAINTENANCE & MONITORING

To ensure that the initiatives outlined in this report are implemented and maintained over time a copy this report will be provided to the owners or owners' corporation.

Inefficiently performing services impact on indoor environment qualities and may increase running costs and greenhouse gas emissions. The owners or owners' corporation will monitor all sustainability initiatives on-site, and will schedule regular fine-tuning of building services and their ongoing maintenance, ensuring the building's maximum environmental performance is achieved at all times.

This development includes a wide range of holistic sustainability measures which have been carefully integrated into the design of the development so that the residents will have the opportunity to reduce their ecological footprint without compromising their quality of life. The proposed design and site-specific initiatives will contribute to Greater Geelong City Council's sustainable development vision.

6 APPENDICES

6.1 APPENDIX A: (STORM) BLUE FACTOR REPORT

Project # 9ACF24AA
V3: 12 Callistemon court, Ocean Grove
Erkan Munur - odinsolutions@outlook.com
12 Callistemon Ct, Ocean Grove VIC 3226, Australia
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BLUE FACTOR®

12 Callistemon court, Ocean Grove

The proposed stormwater treatments provide 'deemed to comply' compliance with the minimum planning requirement for total nitrogen but does not comply with all the relevant objectives for management of stormwater flows on-site.

103%
SCORE

Project details

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Item	Result	Target
Mean annual runoff volume harvested or evapotranspired (%)	45%	>32%
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Total suspended solids (%)	52%	>80%
Total phosphorus (%)	50%	>45%
Total nitrogen (%)	46%	>45%
Total gross pollutants (%)	63%	>70%

Dwelling One

Dwelling One RWT Roof, 169.3m2

Dwelling One RWT Rainwater Tank,
Rainwater tank retention volume in kilolitres: 3

Dwelling Two

Dwelling Two RWT Roof, 169.3m2

Dwelling Two RWT Rainwater Tank,
Rainwater tank retention volume in kilolitres: 3

Catchments

Dwelling One RWT Roof, 169.3m2

Dwelling Two RWT Roof, 169.3m2

Untreated Roofing Areas 140.1m2

Dwelling One Driveway Paved, 25.4m2

Dwelling Two Driveway Paved, 24.7m2

Garden Areas/ Previous Areas Pervious (garden and lawn), 305.07m2

Treatments

Dwelling One RWT Rainwater Tank,
Rainwater tank retention volume in kilolitres: 3

162%

Dwelling Two RWT Rainwater Tank,
Rainwater tank retention volume in kilolitres: 3

162%

Buildings & dwellings

Dwelling One Residential Townhouse, 4 bedroom(s)

Water sources	I want to calculate my water use based on fixtures and fittings
Basin taps - Primary water source	Mains water
Basin taps - Efficiency	5 star WELS rating
Showers - Primary water source	Mains water
Showers - Efficiency	3 star WELS rating (> 4.5 but < 6 litres per minute)
Clothes Washer - Primary water source	Rainwater
Clothes Washer - Efficiency	3 star WELS rating (minimum requirement)
Toilets connected to mains water	0
Toilets connected to rainwater	2
Toilets connected to recycled water	0
Toilets efficiency	4 star WELS rating
Garden water use	Garden water demands are not in use

Dwelling Two Residential Townhouse, 4 bedroom(s)

Water sources	I want to calculate my water use based on fixtures and fittings
Basin taps - Primary water source	Mains water
Basin taps - Efficiency	5 star WELS rating
Showers - Primary water source	Mains water
Showers - Efficiency	3 star WELS rating (> 4.5 but < 6 litres per minute)
Clothes Washer - Primary water source	Rainwater
Clothes Washer - Efficiency	3 star WELS rating (minimum requirement)
Toilets connected to mains water	0
Toilets connected to rainwater	2
Toilets connected to recycled water	0
Toilets efficiency	4 star WELS rating
Garden water use	Garden water demands are not in use

6.2 APPENDIX B: WSUD MAINTENANCE & INSTALLATION

INSTALLATION

RAINWATER TANKS

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

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

PUMPS

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

INSPECTION REQUIREMENTS

RAINWATER TANKS

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

The rainwater tank should be examined every 2 years for sludge build up. Ensure the monitoring system (be it digital or a simple float system) is functioning properly by checking the water level in the rainwater tanks.

PUMPS

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

CLEAR OUT/ MAINTENANCE PROCEDURE

RAINWATER TANK, ROOF & GUTTERS

Rainwater tanks will require the roof and gutters onsite to be maintained; gutters should be checked, maintained and cleaned every six months to avoid blockages from occurring. Any trees onsite should be maintained every 6 months with branches overhanging the roof removed.

Water ponding in gutters should be avoided as this provides a breeding ground for mosquitoes; tanks should also not become breeding grounds for mosquitoes. If mosquitoes are detected in the tank remedial steps need to occur to prevent breeding. If mosquitoes or other insects are found in rainwater tanks, the point of entry should be located and repaired. As well as preventing further access, this will prevent the escape of emerging adults. Gutters should be inspected to ensure they do not contain ponded water, and be cleaned out if necessary.

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

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

COMMISSIONING

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

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

PUMPS
Commissioning should occur as per the chosen manufacturer specifications.

SUMMARY (RAINWATER TANKS) - Inspection and Care Schedule (Occupants will be responsible for each maintenance task).

Component	Key Activities	Typical Frequency
Gutters and Downpipes	Safely inspect gutters for accumulated debris and clean. Engage a contractor to remove debris and clean gutters if required. Ensure surrounding vegetation is maintained to reduce debris.	6 months
Roof	Arrange roof cleaning should water quality decline to unacceptable quality.	12 months
First Flush Diverter	Inspect for blockages within diverter and remove any build-up of litter/leaves etc.	6 months
Filtration System	Inspect and clean filtration system to remove excess build-up of matter on filter medium.	6 months
Tank inlets/ mesh cover	Inspect for obstructions and remove / clean accordingly.	12 months
Tank volume	Inspect for any holes or leaks. Immediately attend to repair.	12 months
Water Quality	Test kits readily available from plumbing supplies or home maintenance stores. Test water and if quality is substandard, inspect water harvesting treatment stream.	12 months
Internal inspection Tank Clean	Engage contractor to undertake full inspection and clean according to individual tank needs.	As needed if water quality is poor
Pump/ Mains backup device	Examine pumps/mains back up devices to ensure they are operating correctly. Perform routine maintenance and servicing of pump equipment as recommended according to manufacturer.	As recommended by manufacturer
Pipes and taps	Inspect pipes/taps for leaks. Repair or replace as required.	12 months
Overflow	Check for blockages of overflow system to ensure a clear and unobstructed connection to stormwater network.	12 months