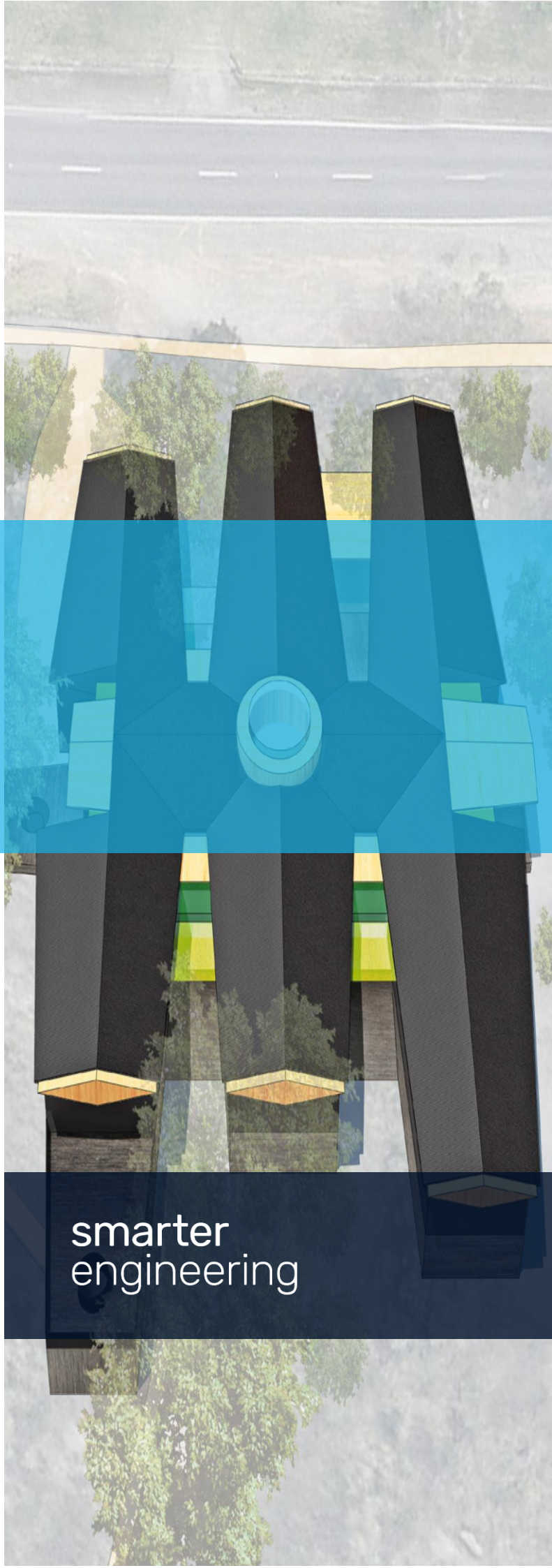
SUSTAINABILITY MANAGEMENT PLAN



Project

Oonah Belonging Place, Healesville

Prepared For

Workshop Architecture

Document Details

Revision C

Date 13/12/2022

Start the Journey

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Document Control

The following table details this document revision and control details.

Issue	Author	Reviewer	Date	Description
A	JS	NS	08/09/2022	For Review
B	JS	-	11/10/2022	Final
C	JS	-	13/12/2022	Final

Contents

Section 1 - Executive Summary

JBA Consulting Engineers Pty Ltd has been engaged to prepare the Sustainability Management Plan (SMP) for the proposed Community Services Hub at 1 Badger Creek Road, Healesville.

The Yarra Ranges Council Planning Scheme includes Environmentally Sustainable Design (ESD) considerations.

The aim of the Sustainability Management Plan is to identify the key sustainability issues relevant to the project and to provide the Responsible Planning Authority with a clear indication of how sustainability has been addressed within this development. JBA Consulting Engineers has benchmarked the performance of the proposed facility against industry standards and demonstrated the project's sustainability commitments.

The assessment has been carried out for a number of key ESD criteria including building management, water and energy efficiency, stormwater, Indoor Environment Quality (IEQ), transport, waste, urban ecology, materials and innovation. As such, this report provides a holistic assessment of the proposed design at the planning stage.

A summary of the proposed ESD initiatives for this development is outlined below.

Criteria	Aim of Criteria	Design Response
Management	This category encourages and rewards the adoption of practices and processes that enable and support best practice sustainability outcomes throughout the different phases of a project's design, construction and its ongoing operation.	• ESD Professional involvement. • Preliminary Facade assessment completed to inform energy performance at early stage. • Separate utility meters for all utilities provided for common areas and individual commercial tenancies. • Building users guide to be provided to building occupants.
Water	This category aims to encourage and reward initiatives that reduce the consumption of potable water through measures such as the incorporation of water efficient fixtures and building systems and water re-use.	• High efficiency fixtures and fittings. • A 20,000L capacity rainwater tank for toilet flushing. • Potable water consumption reduced by >80% in buildings air-conditioning and when testing fire safety systems.
Energy	This category aims to reward projects that are designed and constructed to reduce their overall operational energy consumption below that of a comparable standard-practice building.	• The project will exceed NCC2019 insulation requirements. • Efficient heating, cooling, ventilation and water heating systems. • Provision of a rooftop solar photovoltaic system. • Efficient lighting systems and controls.
Stormwater	This category aims to minimise peak storm water outflows from the site and reduce pollutants entering the public sewer infrastructure.	• A 20,000L capacity rainwater tank, collecting approximately 811m^2 roof area runoff, connected to all toilets for flushing. Remaining roof area (600m^2) shall be connected to swale drain/buffer strip. Driveway/carpark area (664m^2) shall be connected to Enviss pits/raingarden.
Indoor Environment Quality	This category aims to encourage and reward initiatives that enhance the comfort and well-being of occupants.	• Direct access to natural daylight for all habitable spaces has been provided. • Ventilation systems shall provide a 50% increase in outdoor air to regular use areas, compared to the minimum required by AS 1668.2:2012. • Ventilation system to monitor and maintain maximum 700ppm CO_2 concentration.

Criteria	Aim of Criteria	Design Response
		• Use of low VOC paints, adhesives and sealants to reduce indoor air pollutants. • Use of E1 rated engineered wood products. • All carpet meets maximum indoor pollutant emission limits.
Transport	This category aims to reward projects that facilitate a reduction of the dependency of occupants on private car use as an important means of reducing overall greenhouse gas emissions.	• Good access to public transport and amenities.
Waste	To ensure waste avoidance, reuse and recycling during the design and operation	• Recycling facilities at least as convenient as facilities for general waste.
Urban Ecology	This category aims to reduce the negative impacts on sites' ecological value as a result of urban development and reward projects that minimise harm and enhance the quality of local ecology.	• Minimum 80m^2 communal spaces provided for social activity. • Minimum 10% of the total site will be covered with vegetation to improve ecological value of the site and mitigate the heat island effect.
Materials	This category aims to address the consumption of resources within a building construction context, by encouraging the selection of lower-impact materials.	• Used of certified sustainable materials and products.

Section 2 - Introduction

This Sustainability Management Plan is developed as part of the Town Planning submissions to provide an overview of the sustainable design features and predicted environmental performance of the proposed Community Services Hub at 1 Badger Creek Road, Healesville.

The Yarra Ranges Council Planning Scheme promotes ecologically sustainable developments within their boundaries, and has an expectation that developers consider and incorporate ESD practices within their development and that these be submitted for Town Planning proposals.

This Sustainability Management Plan is the result of a holistic assessment and review of the ways in which the proposed development addresses key sustainability criteria within its design. The development has been benchmarked against industry standards and assessed for the proposed environmental initiatives.

2.1. Project Description

The proposed development covered by this SMP is a Community Services Hub comprising:

- Offices & Consulting spaces
- Programming & Children's areas
- Indoor & Outdoor communal spaces
- Community Kitchen

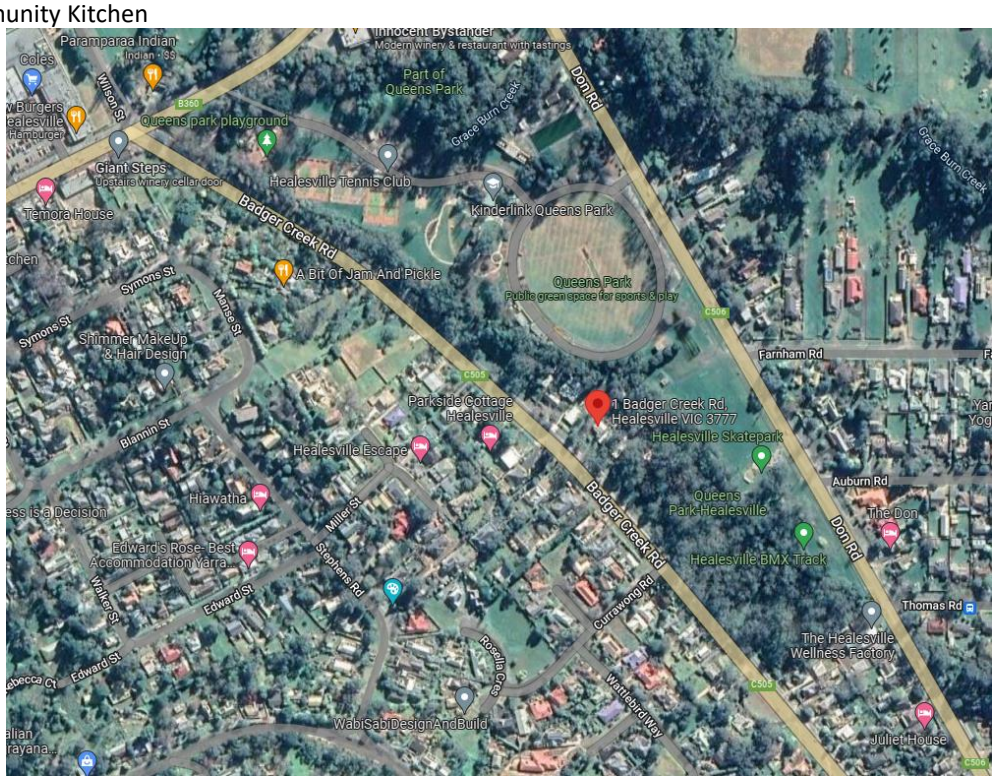


Figure 1 Project Site (Source: Google Maps)

2.2. Documents Used for Assessment

This report has been informed by the architectural drawings prepared by Workshop Architecture Planning Issue dated 22nd August 2022

2.3. Assessment Methodology

JBA Consulting Engineers has prepared this Sustainability Management Plan using the following tools to benchmark the best practice initiatives part of this development:

- Built Environment Sustainability Scorecard (BESS)
- STORM – Stormwater quality and quantity assessment

Built Environment Sustainability Scorecard BESS

The Built Environment Sustainability Scorecard (BESS) assesses energy and water efficiency, thermal comfort, and the overall environmental performance of the project. It was created to assist builders and developers to demonstrate that they meet Council's sustainability requirements as part of planning permit applications.

The project aspires to a "best practice" ESD" target and this has been benchmarked by using **BESS (Built Environment Sustainability Scorecard).**

The overall BESS score is shown as a percentage figure. This figure represents a percentage improvement over a benchmark project.

- **A score of 50%** and higher equates to 'best practice' and is an effective pass of the BESS tool.
- **A score of 70%** and higher equates to BESS 'excellence' and exists as a higher benchmark in the tool.

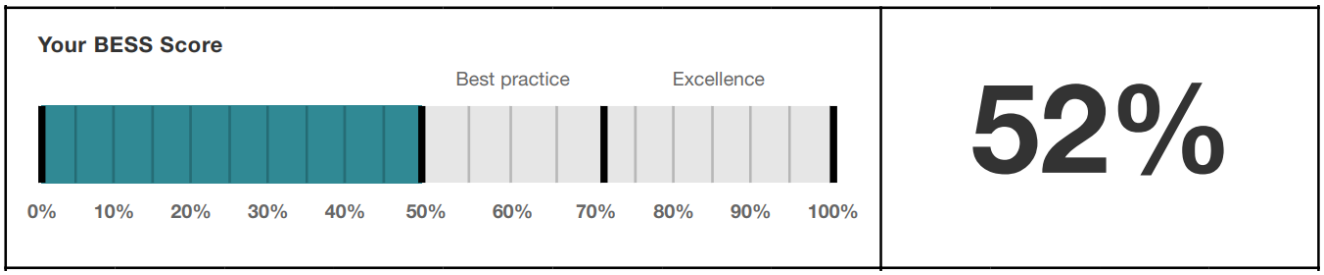
The BESS (Built Environment Sustainability Scorecard) assessment indicates the following:

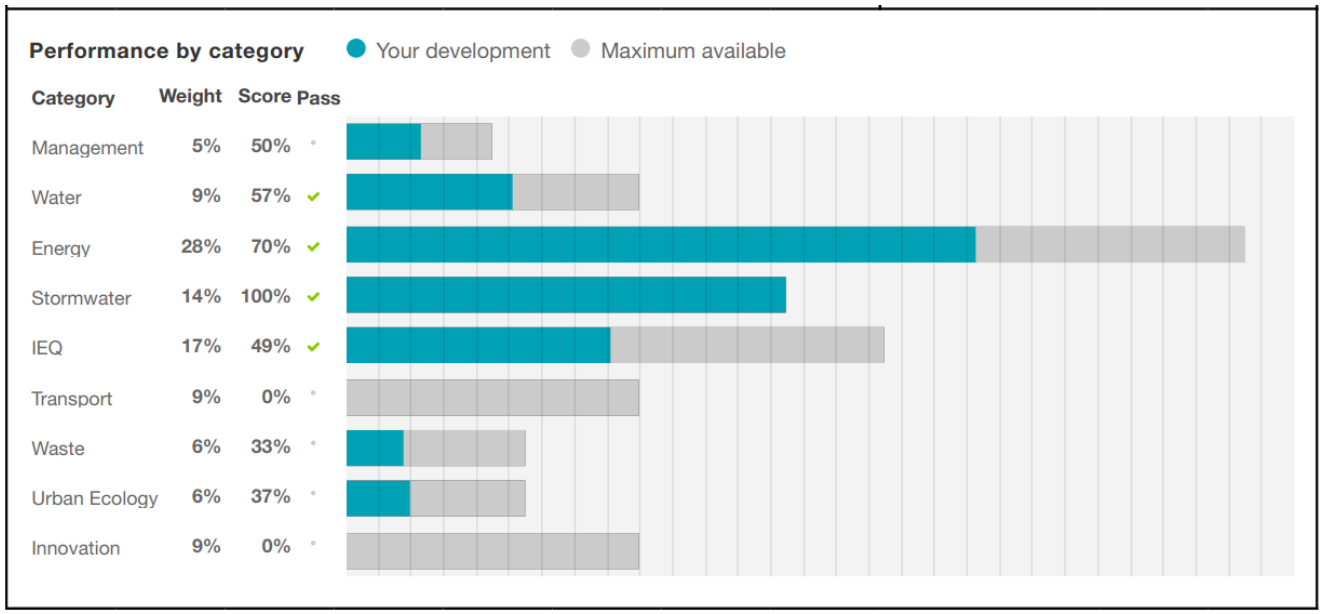
- **Score: 52%**
- **Best practice**

Refer to Appendix A for BESS Assessment Details.

The outcomes of this assessment are presented and discussed under the key ESD criteria outlined below.

- Design
- Management
- Water
- Energy
- Stormwater
- Indoor Environment Quality
- Transport
- Waste
- Urban Ecology
- Materials





Section 3 - Design

The primary role of buildings is to shelter their occupants from the outdoor environment while maintaining comfortable indoor conditions, minimize the use of energy, water and other resources, and reduce the amount of waste produced during construction and operation. This objective may be achieved through design and operational decisions based on current best practice, achievable both from a technical and economical perspective. While fully achieving this objective may not be possible for all developments, it nonetheless provides an aspirational goal and an opportunity to consider best practice design solutions.

3.1. Sustainability Approach

To reduce the environmental impacts of the development through practical and achievable design solutions the following approach may be implemented.

1. ***Passive design*** – Passive design is design that takes advantage of the climate to maintain a comfortable temperature range in the building. Through appropriate passive design solution such as optimising orientation, shading, insulation, daylight, and ventilation, it is possible to reduce the demand on active systems.
2. ***Efficient systems*** – Design, select and specify efficient systems to satisfy the demands of the building provide an opportunity to minimise operational costs and environmental impacts.
3. ***Offset*** – Once the building's energy and water demand are minimised as much as possible, the use of local and/or off-site renewable and/or reusable sources can be evaluated.

3.2. Site Description

The site is located at 1 Badger Creek Road, Healesville and is within an established neighborhood with good access to local amenities.

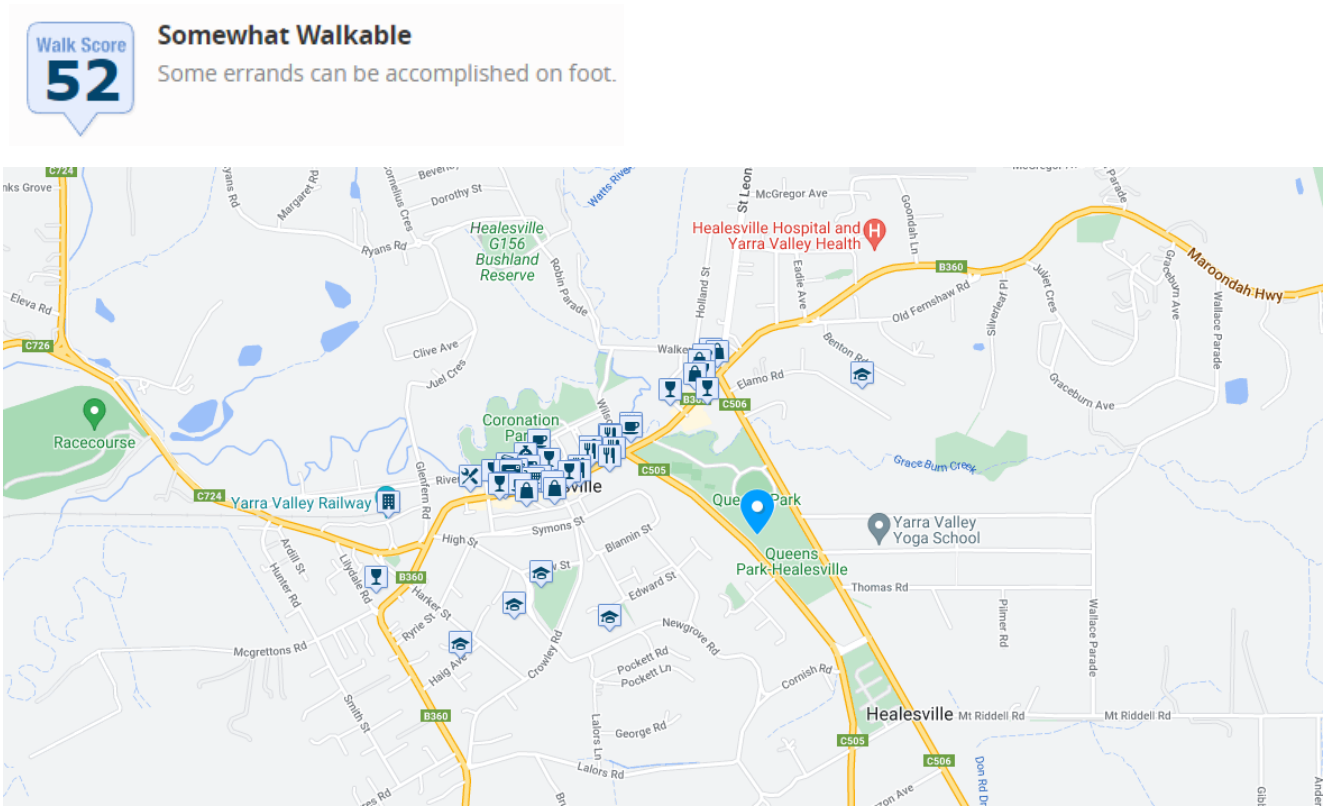


Figure 2 Site location and nearby amenities

Section 4 - Management

The design, construction and operation phases of a development play a central role in achieving sustainable outcomes in the built environment. Therefore, it is important to support a sustainability focused management approach of these phases. This ESD criteria encourages and rewards the adoption of practices and processes that enable and support best practice sustainability outcomes throughout the different phases of a project's design, construction and its ongoing operation.

The management criteria aim to improve a projects' sustainability performance by influencing areas where decision-making is critical. This category rewards the implementation of processes and strategies that support positive sustainability outcomes during construction. The criteria also promote practices that ensure a project will be used to its optimum operational potential.

Management Criteria Assessment

Criteria	Aim of Criteria	Design Response	Responsibility
ESD Professional	To recognise the appointment and active involvement of an ESD Professional.	This assessment has been carried out by appropriately qualified ESD Professionals at JBA Consulting Engineers.	ESD
Metering	To provide building users with information that allows monitoring of energy and water consumption.	Separate metering facilities shall be provided for common areas and commercial tenancies for all utilities.	Electrical
Energy Modelling	To encourage and recognise developments that have used modelling to inform passive design at the early design stage.	Preliminary façade assessment, in accordance with NCC2019 Section J1.5, has been undertaken for the proposed development. Refer to Appendix C for Preliminary Section J Analysis.	ESD

Criteria	Aim of Criteria	Design Response	Responsibility
Building Users Guide	To encourage and recognise initiatives that will help building users to use the building efficiently.	A Building Users' Guide shall be developed and made available to all building occupants. The Building Users' Guide shall use non-technical language and be targeted to building occupants. It can be a simple booklet and/or a combination of interpretative signage throughout the development. While it is the project team's responsibility to define the specific information topics relevant to the building user, the following typical information may be included: • Description of initiatives designed to enhance energy efficiency and minimise greenhouse gas emissions, and measures that must be taken by users during day-to-day operation to maximise their effectiveness; • Description of initiatives intended to enhance and minimise water use and the measures that must be taken by users during day-to-day operation to maximise their effectiveness; • Description of basic function and operation of any nominated building systems that building users may come in direct contact with including any occupant activated controls; • List of relevant contacts for maintenance information, operational issues, complaints or other feedback (e.g. relevant facilities management contact details and/or online request/feedback form); • Description of alternative transport initiatives promoted within premises (such as bicycle facilities, end of trip facilities, carpooling or car-share), location of a transport plan (if available); • Local public transport information, maps and timetables; • Description of the operational waste requirements for the building users, including what waste streams can or cannot be collected for recycling at the premises; • Information on how to maximise the efficiency potential offered by base building services and nominated building systems; and • Information on how to best maximise day lighting, sights and views.	Developer

Section 5 - Water

In Australia, water has long been considered a precious and high-demand resource. Fresh water supplies are increasingly affected by a range of factors including catchment locations, contaminated sources, drought and rising demand.

The 'Water' criteria aim to encourage and reward initiatives that reduce the consumption of potable water. Reductions in operational water consumption may be achieved through water efficient fixtures and building systems and water re-use within a project.

Water Criteria Assessment

Criteria	Aim of Criteria	Design Response	Responsibility
Potable Water	To encourage building design that minimises potable water consumption in operations.	All sanitary fixtures within the proposed development will be of high efficiency and achieve a minimum WELS rating of: • Kitchen Taps – 6 stars • Bathroom Taps – 6 stars • WC – 4 stars • Showers – 4 stars (>=6.0L/s but <=7.5L/s) • Dishwasher – 4 stars • Urinal – 5 Stars	Architect
		A 20,000L capacity rainwater tank, collecting approximately 811m^2 roof area runoff, connected to all toilets for flushing. Remaining roof area (600m^2) shall be connected to swale drain/buffer strip. Driveway/carpark area (664m^2) shall be connected to Enviss pits/raingarden. See Appendix B for STORM rating report.	Hydraulic
		Potable water consumption reduced by >80% in buildings air-conditioning and when testing fire safety systems.	Mechanical/ Fire

Section 6 - Energy

In Victoria, electricity is largely produced from the incineration of non-renewable fossil fuels (95%) which is the country greatest contributor to greenhouse gas emissions.

The 'Energy' criteria aim to reward projects that are designed and constructed to reduce their overall operational energy consumption below that of a comparable standard-practice building. Such reductions are directly related to reduced greenhouse gas emissions, lower overall energy demand as well as reductions in operating costs for building owners and occupants. The 'Energy' criteria aim to facilitate reductions in greenhouse gas emissions by facilitating efficient energy usage and encouraging the utilization of energy generated by low-emission sources.

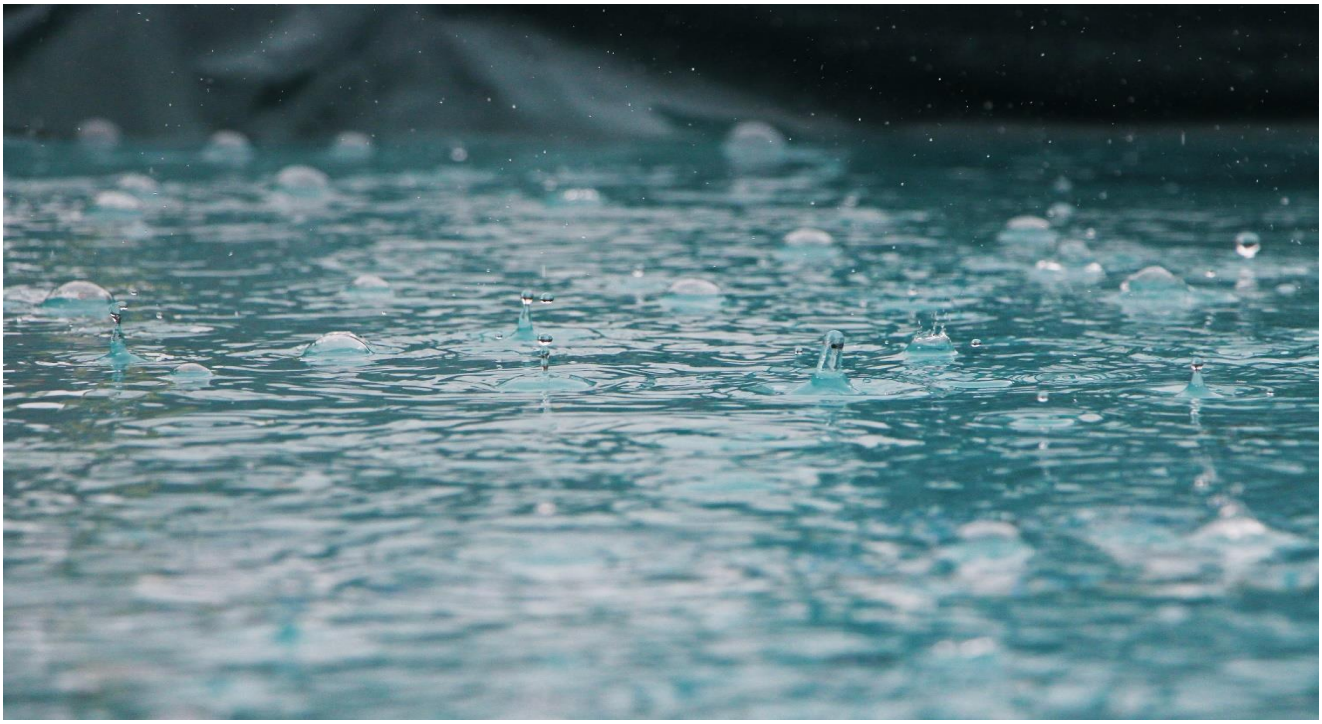
Energy Criteria Assessment

Criteria	Aim of Criteria	Design Response	Responsibility
Greenhouse Gas Emissions	To encourage the reduction of greenhouse gas (GHG) emissions associated with the use of energy in building operations.	The development proposes a 10% improvement in required NCC2019 insulation for floor and ceiling. All walls and glazing demonstrate meeting the required NCC 2019 Façade Calculator. Effective shading, insulation and efficient double-glazed windows will be implemented to achieve Section J compliance. For preliminary glazing and insulation specifications refer to Preliminary Section J Analysis in Appendix C.	ESD
		All heating and cooling systems and water heating systems shall be within one Star of the most efficient equivalent capacity unit available, or have Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available.	Hydraulic/ Mechanical
		At least 90% of the area of the relevant building class meets the requirements in Table J6.2a of the NCC 2019 Vol. 1 This will be achieved through the use of energy efficient LED lighting and controls.	Electrical & Architect
On-site Renewable Energy Generation	To reduce both energy use and energy peak demand through design measure.	A minimum 30kWp Solar Photovoltaic (PV) array shall be installed to reduce peak energy demand and the developments reliance on electricity from fossil fuels.	Electrical & Architect

Section 7 - Stormwater

The Stormwater criteria addresses the environmental impacts related to pollutants entering the waterways and sewage.

The 'Stormwater' criteria aim to assess the environmental impacts of 'point source' stormwater pollution generated by projects.



Stormwater Criteria Assessment

Criteria	Aim of Criteria	Design Response	Responsibility
Stormwater	To reward projects that minimise peak storm water outflows from the site and reduce pollutants entering the public sewer infrastructure.	A 20,000L capacity rainwater tank, collecting approximately 811m^2 roof area runoff, connected to all toilets for flushing. Remaining roof area (600m^2) shall be connected to swale drain/buffer strip. Driveway/carpark area (664m^2) shall be connected to Enviss pits/raingarden. Refer to Appendix B for STORM rating report.	Architect, Hydraulic
Stormwater Management During Construction	To ensure construction measures are taken to prevent litter, sediments and pollution entering stormwater systems.	A construction site stormwater management plan which details how the site shall be managed through construction and which sets out future operational and maintenance arrangements, shall be prepared by the builder and included within the construction management plan. This plan shall outline construction measures to prevent litter, sediments and pollution entering stormwater systems. See Appendix G for 'Keeping Our Stormwater Clean Guidelines'.	Builders

Section 8 - Indoor Environment Quality

Indoor Environment Quality (IEQ) is a key ESD objective in the provision of a healthy and safe internal building environment for occupants.

The 'Indoor Environment Quality' criteria aims to encourage and reward initiatives that enhance the comfort and well-being of occupants through improvements in thermal comfort, minimization of indoor VOCs, and formaldehyde emissions, as well as mold prevention.

Through the 'Indoor Environment Quality' criteria, the aim is to achieve sustainability performance improvements in a manner that also improves occupants' experience of the space. The 'Indoor Environment Quality' criteria recognizes that buildings are designed for people and that reductions in energy use should never be made at the expense of the occupants' health and wellbeing.

Indoor Environment Quality Criteria Assessment

Criteria	Aim of Criteria	Design Response	Responsibility
Daylight access and energy performance through effective shading	To provide a high level of amenity and energy efficiency through design for natural light and to provide passive cooling opportunity.	Good access to daylight is provided to all regular use areas. The daylight assessment has been undertaken in accordance with Green Star hand calculations. The results indicate that 52% of the floor area of regular use areas achieve a daylight factor of 2%. Refer to Appendix F for daylight assessment.	Architect, ESD
Indoor Air Quality	To provide good indoor air quality and improve well-being and health.	Ventilation systems shall provide a 50% increase in outdoor air to regular use areas, compared to the minimum required by AS 1668.2:2012. Ventilation systems shall also be designed to achieve, monitor and maintain a maximum CO_2 concentration of 700ppm to regularly occupied spaces.	Architect
Indoor Pollutants	To recognise projects that safeguard occupant health through the reduction in internal air pollutant levels.	The development will provide low VOC paints, adhesives, sealants and carpets to reduce indoor air pollutants. The products will comply with the TVOC limits as outlined in Appendix D.	Builder
		E1 rated engineered wood products shall be used throughout the development. All engineered wood products used in interior applications shall comply with the formaldehyde emission limits stated in Appendix E.	Builder

Section 9 - Transport

The transport sector is one of the largest contributors to greenhouse gas emissions.

The 'Transport' criteria aim to reward projects that facilitate a reduction of the dependency of building users on private car use as an important means of reducing overall greenhouse gas emissions. The use of motor vehicles directly contributes to climate change in two ways- through the high amounts of energy required to produce cars and build and maintain supporting road transport infrastructure and services; and the direct emissions that result from car operations.

If reliance on individual motor vehicle transportation is to be reduced, it is necessary to maximize alternative transportation options. Rather than limiting access to private fossil fuel vehicles, the 'Transport' criteria aims to encourage and reward initiatives that reduce the need for their use. This may include initiatives that encourage and make possible the use of public transport options, cycling or walking, and the selection of sites that are close to a large number of amenities.

Transport Criteria Assessment

Criteria	Aim of Criteria	Design Response	Responsibility
Sustainable Transport	To reward projects that implement design and operational measures that reduce the carbon emissions arising from occupant travel to and from the project, when compared to a benchmark building. This also promotes the health and fitness of commuters, and the increased liveability of the location.	The development is located within an established neighbourhood and achieves a Walkability Score of 52, indicating some errands can be accomplished on foot. The development is also a 10-minute walk from bus stops in the centre of Healesville, offering public transport routes to neighbouring suburbs and ultimately Lilydale train station which connects to Melbourne's CBD.	-

Section 10 - Waste

Up to 40 per cent of the waste going to Australia's landfills is related to the construction and demolition of buildings. Simple design decisions can influence the amount of construction waste being produced and operational waste streams being separated.

Even more waste is produced during the occupancy phase of buildings. Poor waste practices and treatment of the environment in the past have not only lead to a degradation of our water, air and land resources but also represent a large financial burden to current and future generations.

The 'Waste' criteria aim to reward projects that implement best practice waste management practices.

Waste Criteria Assessment

Criteria	Aim of Criteria	Design Response	Responsibility
Operational Waste	To reward projects that help minimise recyclable and organic material going to landfill	Recycling facilities shall be at least as convenient for occupants as facilities for general waste.	Architect

Section 11 - Urban Ecology

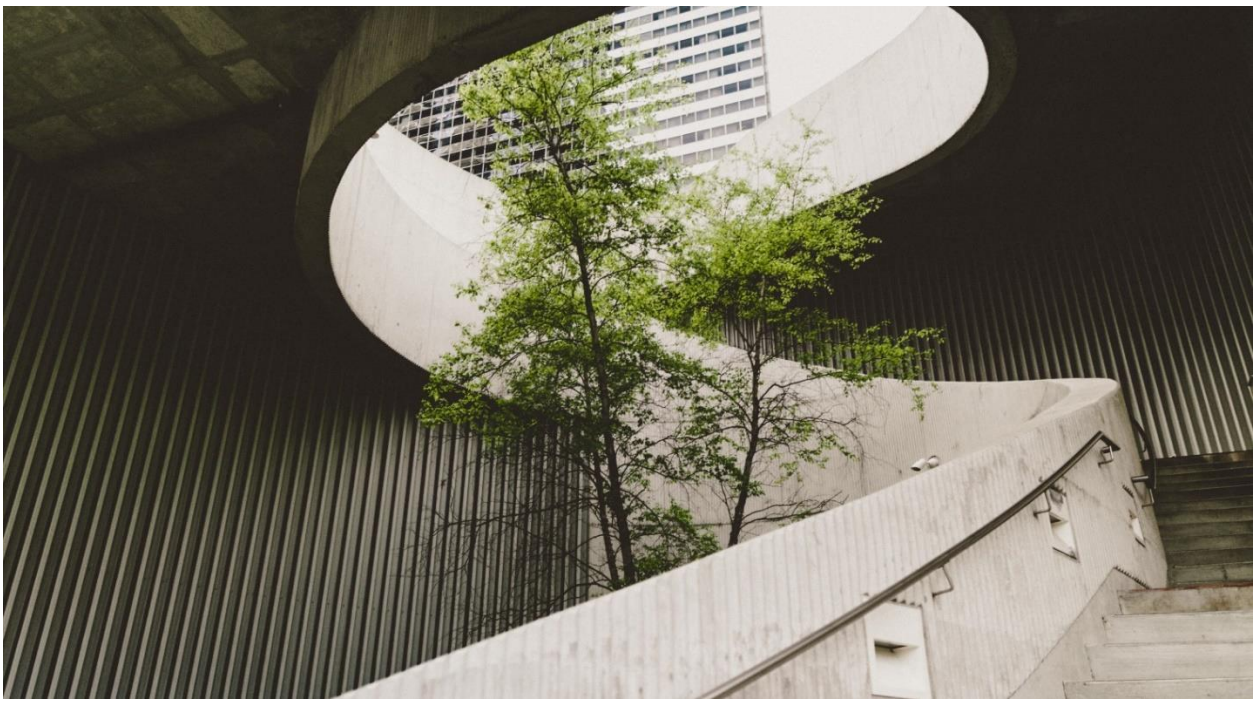
In highly urbanised environments, it is important to maintain and enhance the health of our urban ecosystems, not only for local flora and fauna but also for people.

This category aims to overcome the loss of natural processes and improve liveability for people, flora and fauna by encouraging actions such as decreasing the areas of hard or impervious surfaces, while increasing vegetation and landscaping.

The 'Land Use and Ecology' criteria aim to reduce the negative impacts of site's ecological value as a result of urban development and reward projects that minimise harm and enhance the quality of local ecology.

Land Use and Ecology Criteria Assessment

Criteria	Aim of Criteria	Design Response	Responsibility
Common Space	To encourage and recognise initiatives that facilitate interaction between building occupants	The development shall provide a minimum of 80m^2 communal open space where occupants can gather for social activity.	Architect
Vegetation	To provide passive cooling opportunity and reduce impact of heat island effect.	The site of the proposed development includes established trees and landscaping areas. To mitigate the heat island effect and improve the overall ecological value of the site, 10% of the site area shall be covered with vegetation.	Landscape Architect



Section 12 - Materials

The production and use of building materials can have serious impacts on the environment. Energy is used to extract, produce and transport building materials; natural resources are exploited to be used in building materials; the industrial production of the materials causes pollution, and if poorly selected and used, the material ends up as waste.

The 'Materials' criteria aim to address the consumption of resources within a building construction context, by encouraging the selection of lower-impact materials and reducing the use of virgin materials. The category also encourages absolute reductions in the amount of waste generated or the recycling of as much of the waste generated as possible.

Materials Criteria Assessment

Criteria	Aim of Criteria	Design Response	Responsibility
Responsible Building Materials	To reward projects that include materials that are responsibly sourced or have a sustainable supply chain.	Where equally suitable for use and selection does not impact on the project budget, timber used in the building and construction works shall be certified by a forest certification scheme and be accompanied by a relevant Chain of Custody (CoC) certificate, or come from a reused source.	Builder
		Where equally suitable for use and selection does not impact on the project budget, permanent formwork, pipes, flooring, blinds and cables shall not contain PVC and have an Environmental Product Declaration (EPD), or meet Best Practice Guidelines for PVC.	Builder

Sustainable Products	To encourage sustainability and transparency in product specification.	Products and manufacturers complying with the following standards and certifications shall be chosen in preference to non-compliance choices, where they are equally suitable for use and selection does not impact the project budget: • Carpet Institute of Australia Environmental Certification Scheme (ECS) • Ecospecifier Green Tag GreenRate • Australasian Furnishing Research and Development Institute Green Tick • Good Environmental Choice Australia • The institute for Market Transformation to Sustainability Sustainable Materials Rating Technology • Manufacturer Environmental Management System (ISO14001) • Manufacturer certified to SA8000 social accountability standard or GeSI management standards • Products certified to Fairtrade Mark	Builder

Section 13 - Conclusion

This report outlines the range of ESD initiatives that have been included in the design of the proposed development at Oonah Belonging Place, Healesville.

The development proposal demonstrates a holistic approach to sustainable urban development that addresses the Yarra Ranges Council ESD objectives.

Appendix A – BESS Assessment Results

See the following page.

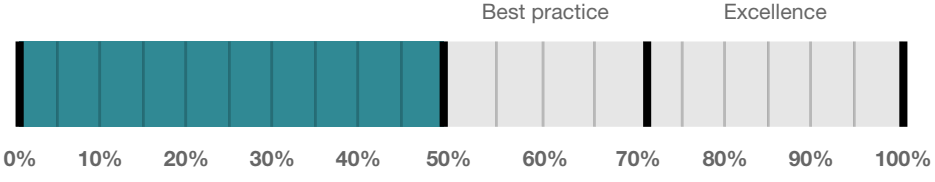
BESS Report

Built Environment Sustainability Scorecard

This BESS report outlines the sustainable design commitments of the proposed development at 1 Badger Creek Rd Healesville VIC 3777. 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 Yarra Ranges Shire 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

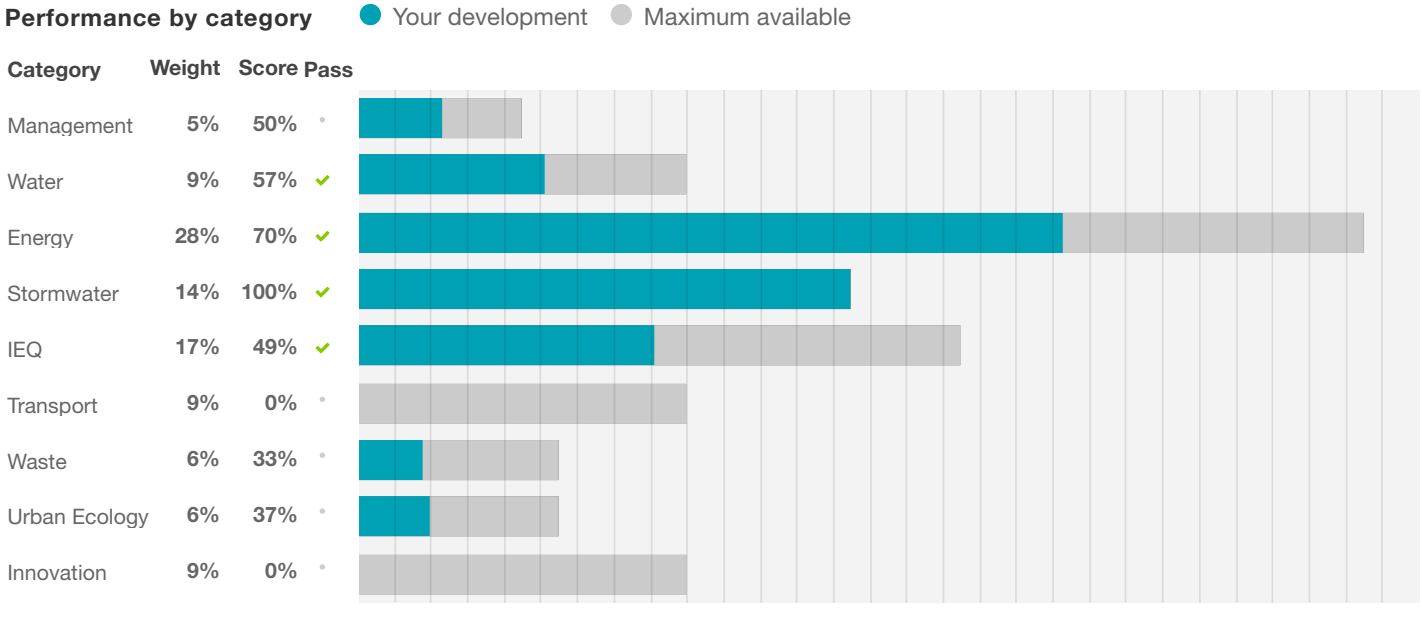


52%

Project details

Address	1 Badger Creek Rd Healesville VIC 3777
Project no	64468F1F-R1
BESS Version	BESS-6
Site type	Non-residential development
Account	projects@jba.com.au
Application no.	
Site area	5,205.00 m²
Building floor area	1,115.00 m²
Date	13 December 2022
Software version	1.7.1-B.393

Performance by category



Buildings

Name	Height	Footprint	% of total footprint
Community Building	1	1,115 m²	100%

Dwellings & Non Res Spaces

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Public building				
Community Building	1	1,115 m²	Community Building	100%
Total	**1**	**1,115 m²**	**100%**	

Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Management 3.2	Individual utility meters annotated	To be printed Refer to attached documents.	✔
Management 3.3	Common area submeters annotated	To be printed Refer to attached documents.	✔
Energy 4.2	Floor plans showing location of photovoltaic panels as described.	To be printed Refer to attached documents.	✔
Stormwater 1.1	Location of any stormwater management systems used in STORM or MUSIC modelling (e.g. Rainwater tanks, raingarden, buffer strips)	To be printed Refer to attached documents.	✔
Waste 2.2	Location of recycling facilities	To be printed Refer to attached documents.	✔
Urban Ecology 1.1	Size and location of communal spaces	To be printed Refer to attached documents.	✔
Urban Ecology 2.1	Vegetated areas	To be printed Refer to attached documents.	✔

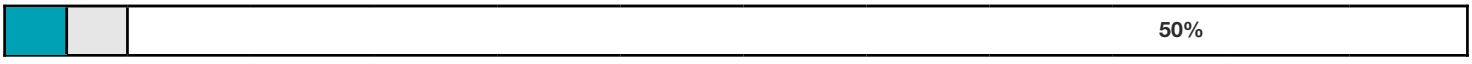
Supporting evidence

Credit	Requirement	Response	Status
Management 2.3a	Section J glazing assessment	To be printed Refer to attached documents. Refer to attached documents.	✔
Energy 1.1	Energy Report showing calculations of reference case and proposed buildings	To be printed Refer to attached documents. Refer to attached documents.	✔
Energy 3.7	Provide a written description of the average lighting power density to be installed in the development and specify the lighting type(s) to be used.	To be printed Refer to attached documents. Refer to attached documents.	✔
Energy 4.2	Specifications of the solar photovoltaic system(s).	To be printed Refer to attached documents. Refer to attached documents.	✔

Credit	Requirement	Response	Status
Stormwater 1.1	STORM report or MUSIC model	To be printed Refer to attached documents. Refer to attached documents.	✔
IEQ 1.4	A short report detailing assumptions used and results achieved.	To be printed Refer to attached documents. Refer to attached documents.	✔

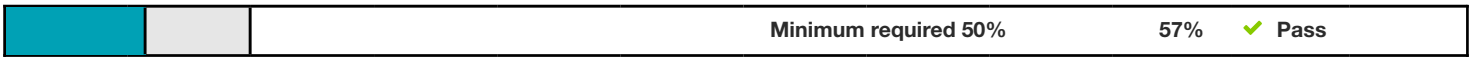
Credit summary

Management Overall contribution 4.5%



1.1 Pre-Application Meeting	0%
2.3 Thermal Performance Modelling - Non-Residential	50%
3.2 Metering - Non-Residential	100%
3.3 Metering - Common Areas	100%
4.1 Building Users Guide	100%

Water Overall contribution 9.0%



1.1 Potable water use reduction	60%
3.1 Water Efficient Landscaping	0%
4.1 Building Systems Water Use Reduction	100%

Energy Overall contribution 27.5%

Minimum required 50%	70%	✔ Pass

1.1 Thermal Performance Rating - Non-Residential	37%	
2.1 Greenhouse Gas Emissions	100%	
2.2 Peak Demand	100%	
2.3 Electricity Consumption	100%	
2.4 Gas Consumption	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	100%	
4.4 Renewable Energy Systems - Other	0%	⊘ Disabled
		No other (non-solar PV) renewable energy is in use.

Stormwater Overall contribution 13.5%

Minimum required 100%	100%	✔ Pass

1.1 Stormwater Treatment	100%	

IEQ Overall contribution 16.5%

Minimum required 50%	49%	✔ Pass

1.4 Daylight Access - Non-Residential	52%	✔ Achieved
2.3 Ventilation - Non-Residential	72%	✔ Achieved
3.4 Thermal comfort - Shading - Non-residential	0%	
3.5 Thermal Comfort - Ceiling Fans - Non-Residential	0%	
4.1 Air Quality - Non-Residential	100%	

Transport Overall contribution 9.0%

0%

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

Waste Overall contribution 5.5%

33%

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

Urban Ecology Overall contribution 5.5%

37%

1.1 Communal Spaces	100%
2.1 Vegetation	50%
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 2%

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		50%
Score Contribution	This credit contributes 25.0% towards the category score.	
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2019 Section J1.5?	
Question	Criteria Achieved ?	
Public building	Yes	
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2019 Section J (Energy Efficiency), NABERS or Green Star?	
Question	Criteria Achieved ?	
Public building	No	
3.2 Metering - Non-Residential		100%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Have utility meters been provided for all individual commercial tenants?	
Question	Criteria Achieved ?	
Public building	Yes	
3.3 Metering - Common Areas		100%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Have all major common area services been separately submetered?	
Question	Criteria Achieved ?	
Public building	Yes	
4.1 Building Users Guide		100%
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	Yes	

Water Overall contribution 5% Minimum required 50%

Water Approach	
What approach do you want to use for Water?:	Use the built in calculation tools

Project Water Profile Question	
Do you have a reticulated third pipe or an on-site water recycling system?:	No
Are you installing a swimming pool?:	No
Are you installing a rainwater tank?:	Yes

Water fixtures, fittings and connections	
Building:	Community Building
Showerhead:	4 Star WELS (>= 6.0 but <= 7.5)
Bath:	Scope out
Kitchen Taps:	>= 6 Star WELS rating
Bathroom Taps:	>= 6 Star WELS rating
Dishwashers:	>= 4 Star WELS rating
WC:	>= 4 Star WELS rating
Urinals:	>= 5 Star WELS rating
Washing Machine Water Efficiency:	Scope out
Which non-potable water source is the dwelling/space connected to?:	RWT
Non-potable water source connected to Toilets:	Yes
Non-potable water source connected to Laundry (washing machine):	No
Non-potable water source connected to Hot Water System:	No

Rainwater Tank	
What is the total roof area connected to the rainwater tank?: RWT	811 m^2
Tank Size: RWT	20,000 Litres
Irrigation area connected to tank: RWT	0.0 m^2
Is connected irrigation area a water efficient garden?: RWT	No
Other external water demand connected to tank?: RWT	-

1.1 Potable water use reduction		60%
Score Contribution	This credit contributes 71.4% 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	3648 kL	
Output	Proposed (excluding rainwater and recycled water use)	
Project	2602 kL	
Output	Proposed (including rainwater and recycled water use)	
Project	2113 kL	
Output	% Reduction in Potable Water Consumption	
Project	42 %	
Output	% of connected demand met by rainwater	
Project	100 %	
Output	How often does the tank overflow?	
Project	Often	
Output	Opportunity for additional rainwater connection	
Project	604 kL	

3.1 Water Efficient Landscaping		0%
Score Contribution	This credit contributes 14.3% towards the category score.	
Criteria	Will water efficient landscaping be installed?	
Question	Criteria Achieved ?	
Project	No	

4.1 Building Systems Water Use Reduction		100%
Score Contribution	This credit contributes 14.3% 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	Yes	

Energy Overall contribution 19% Minimum required 50%

Use the BESS Deem to Satisfy (DtS) method for Energy?:	Yes
Do all exposed floors and ceilings (forming part of the envelope) demonstrate a minimum 10% improvement in required NCC2019 insulation levels (total R-value upwards and downwards)?:	Yes
Does all wall and glazing demonstrate meeting the required NCC2019 facade calculator (or better than the total allowance)?:	Yes
Are heating and cooling systems within one Star of the most efficient equivalent capacity unit available, or Coefficient of Performance (CoP) & Energy Efficiency Ratios (EER) not less than 85% of the CoP & EER of the most efficient equivalent capacity unit available?:	Yes
Are water heating systems within one star of the best available, or 85% or better than the most efficient equivalent capacity unit?:	Yes
Are you installing a cogeneration or trigeneration system?:	No
Non-Residential Building Energy Profile	
Heating, Cooling & Comfort Ventilation - Electricity - reference fabric and reference services:	-
Heating, Cooling & Comfort Ventilation - Electricity - proposed fabric and reference services:	-
Heating, Cooling & Comfort Ventilation - Electricity - proposed fabric and proposed services:	-
Heating - Gas - reference fabric and reference services:	-
Heating - Gas - proposed fabric and reference services:	-
Heating - Gas - proposed fabric and proposed services:	-
Heating - Wood - reference fabric and reference services:	-
Heating - Wood - proposed fabric and reference services:	-
Heating - Wood - proposed fabric and proposed services:	-
Hot Water - Electricity - Baseline:	-
Hot Water - Electricity - Proposed:	-
Hot Water - Gas - Baseline:	-
Hot Water - Gas - Proposed:	-
Lighting - Baseline:	-
Lighting - Proposed:	-
Peak Thermal Cooling Load - Baseline:	-
Peak Thermal Cooling Load - Proposed:	-
Solar Photovoltaic system	
System Size (lesser of inverter and panel capacity): PV Array	30.0 kW peak
Orientation (which way is the system facing)?: PV Array	North-West
Inclination (angle from horizontal): PV Array	16.0 Angle (degrees)

1.1 Thermal Performance Rating - Non-Residential	37%	
Score Contribution	This credit contributes 40.0% towards the category score.	
Criteria	What is the % reduction in heating and cooling energy consumption against the reference case (NCC 2019 Section J)?	
2.1 Greenhouse Gas Emissions	100%	
Score Contribution	This credit contributes 10.0% 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 5.0% towards the category score.	
Criteria	What is the % reduction in the instantaneous (peak-hour) demand against the benchmark?	
2.3 Electricity Consumption	100%	
Score Contribution	This credit contributes 10.0% towards the category score.	
Criteria	What is the % reduction in annual electricity consumption against the benchmark?	
2.4 Gas Consumption	100%	
Score Contribution	This credit contributes 10.0% towards the category score.	
Criteria	What is the % reduction in annual gas consumption against the benchmark?	
3.1 Carpark Ventilation	N/A	Scoped Out
This credit was scoped out	N/A	
3.2 Hot Water	100%	
Score Contribution	This credit contributes 5.0% 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 10.0% towards the category score.	
Criteria	Does the maximum illumination power density (W/m2) in at least 90% of the area of the relevant building class meet the requirements in Table J6.2a of the NCC 2019 Vol 1?	
Question	Criteria Achieved ?	
Public building	Yes	
4.1 Combined Heat and Power (cogeneration / trigeneration)	N/A	Scoped Out
This credit was scoped out	No cogeneration or trigeneration system in use.	

4.2 Renewable Energy Systems - Solar	100%	
Score Contribution	This credit contributes 5.0% towards the category score.	
Criteria	What % of the estimated energy consumption of the building class it supplies does the solar power system provide?	
Output	Solar Power - Energy Generation per year	
Public building	36,472 kWh	
Output	% of Building's Energy	
Public building	88 %	
4.4 Renewable Energy Systems - Other	0%	⊘ Disabled
This credit is disabled	No other (non-solar PV) renewable energy is in use.	

Stormwater

Overall contribution 14% Minimum required 100%

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

IEQ Overall contribution 8% Minimum required 50%

1.4 Daylight Access - Non-Residential		52%	✔ 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?		
Public building	52 %		
2.3 Ventilation - Non-Residential		72%	✔ 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?		
Public building	0 %		
Criteria	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668.2:2012?		
Question	What increase in outdoor air is available to regular use areas compared to the minimum required by AS 1668:2012?		
Public building	50 %		
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?		
Question	Value		
Public building	700 ppm		
3.4 Thermal comfort - Shading - Non-residential		0%	
Score Contribution	This credit contributes 17.6% towards the category score.		
Criteria	What percentage of east, north and west glazing to regular use areas is effectively shaded?		
Question	Percentage Achieved?		
Public building	-		
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?		
Public building	-		
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 ?		
Project	Yes		

Criteria	Does all carpet meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Project	No carpet

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

Transport Overall contribution 0%

1.4 Bicycle Parking - Non-Residential		0%
Score Contribution	This credit contributes 22.2% towards the category score.	
Criteria	Have the planning scheme requirements for employee bicycle parking been exceeded by at least 50% (or a minimum of 2 where there is no planning scheme requirement)?	
Question	Criteria Achieved ?	
Public building	No	
Question	Bicycle Spaces Provided ?	
Public building	-	

1.5 Bicycle Parking - Non-Residential Visitor		0%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Have the planning scheme requirements for visitor bicycle parking been exceeded by at least 50% (or a minimum of 1 where there is no planning scheme requirement)?	
Question	Criteria Achieved ?	
Public building	No	
Question	Bicycle Spaces Provided ?	
Public building	-	

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

2.1 Electric Vehicle Infrastructure		0%
Score Contribution	This credit contributes 22.2% towards the category score.	
Criteria	Are facilities provided for the charging of electric vehicles?	
Question	Criteria Achieved ?	
Project	No	

2.2 Car Share Scheme		0%
Score Contribution	This credit contributes 11.1% towards the category score.	
Criteria	Has a formal car sharing scheme been integrated into the development?	
Question	Criteria Achieved ?	
Project	No	

2.3 Motorbikes / Mopeds		0%
Score Contribution	This credit contributes 22.2% towards the category score.	
Criteria	Are a minimum of 5% of vehicle parking spaces designed and labelled for motorbikes (must be at least 5 motorbike spaces)?	
Question	Criteria Achieved ?	
Project	No	

Waste Overall contribution 2%

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	0%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are facilities provided for on-site management of food and garden waste?
Question	Criteria Achieved ?
Project	No

2.2 - Operational Waste - Convenience of Recycling	100%
Score Contribution	This credit contributes 33.3% towards the category score.
Criteria	Are the recycling facilities at least as convenient for occupants as facilities for general waste?
Question	Criteria Achieved ?
Project	Yes

Urban Ecology Overall contribution 2%

1.1 Communal Spaces	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Is there at least the following amount of common space measured in square meters : * 1m² for each of the first 50 occupants * Additional 0.5m² for each occupant between 51 and 250 * Additional 0.25m² for each occupant above 251?
Question	Common space provided
Public building	80.0 m²
Output	Minimum Common Space Required
Public building	80 m²

2.1 Vegetation	50%
Score Contribution	This credit contributes 50.0% towards the category score.
Criteria	How much of the site is covered with vegetation, expressed as a percentage of the total site area?
Question	Percentage Achieved ?
Project	10 %

2.2 Green Roofs	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Does the development incorporate a green roof?
Question	Criteria Achieved ?
Project	No

2.3 Green Walls and Facades	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Does the development incorporate a green wall or green façade?
Question	Criteria Achieved ?
Project	No

3.2 Food Production - Non-Residential	0%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	What area of space per occupant is dedicated to food production?
Question	Food Production Area
Public building	0.0 m²
Output	Min Food Production Area
Public building	28 m²

Innovation Overall contribution 0%

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

Disclaimer

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Appendix B – STORM Rating Report and Stormwater Management

STORM Rating Report

Melbourne Water STORM Rating Report

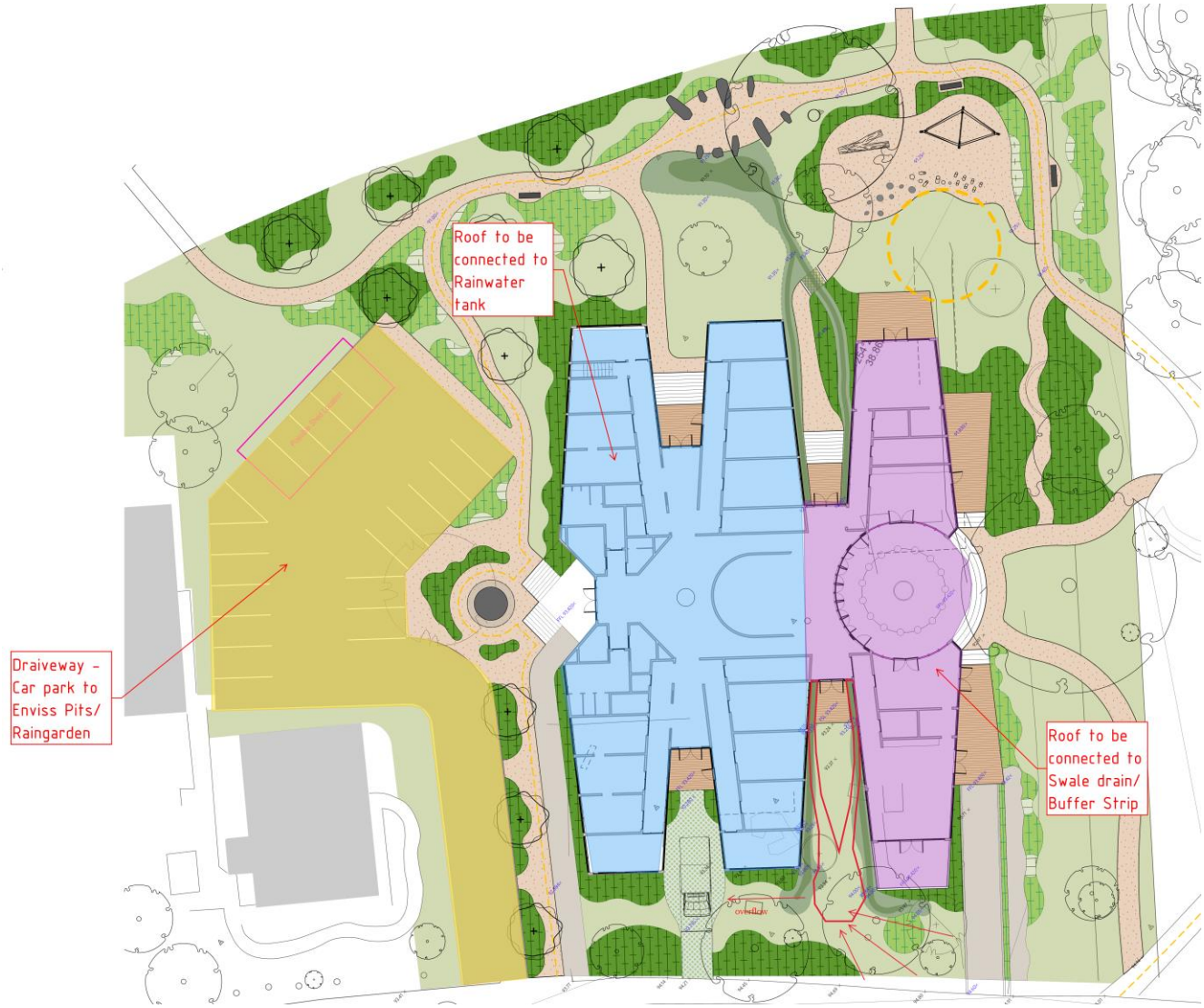
TransactionID:	1484730	
Municipality:	YARRA RANGES	
Rainfall Station:	YARRA RANGES	
Address:	1 Badger Creek Road	
	Healsvile	
	VIC	3777
Assessor:	D.K	
Development Type:	Commercial/Retail - Subdivision	
Allotment Site (m2):	5,202.00	
STORM Rating %:	100	

Description	Impervious Area (m2)	Treatment Type	Treatment Area/Volume (m2 or L)	Occupants / Number Of Bedrooms	Treatment %	Tank Water Supply Reliability (%)
Roof (RWT)	811.00	Rainwater Tank	20,000.00	40	144.80	82.00
Roof (Swale Drain)	600.00	Buffer Strip	40.00	0	66.00	0.00
Impervious	310.00	None	0.00	0	0.00	0.00
Driveway/ Carpark	664.00	Raingarden 100mm	10.00	0	122.55	0.00

Rainwater Tank Maintenance Schedule

Description	Action	Maintenance Frequency
Gutter Guards	Inspection & cleaning	Every 6 months
Leaf Diverters	Inspection & cleaning	Every 6 months
First Flush Diverters	Inspection & cleaning	Every 6 months
Water Tank	Inspection for defects and repair or replace as required.	Every 6 months
	Monitoring sediment build-up & cleaning	1 – 2 years

Rainwater Catchment Areas



**Rainwater capture area is indicative only and to be confirmed by services engineer in design development stage.*

Appendix C – Preliminary Section J Analysis

Performance Requirements

The following table outlines the minimum building envelope performance specifications for non-residential spaces within the development based on the available documentation assessed against the BCA 2019 Section J requirements.

Please note that the assessment has been based on the limited information available at this stage, and it is only intended to provide indicative information on the expected performance of the proposed development.

Table 2 Preliminary energy efficiency Section J assessment construction details

Building Fabric	Performance Specification
Exposed floor (slab on ground)	Floors must achieve a minimum total R-value of Rt2.20
Roof/ceiling construction	Roof/ceiling must achieve a minimum total R-value of Rt4.07
External wall	External walls must achieve a minimum total R-value of Rt1.40
Internal wall (to unconditioned spaces)	Internal walls must achieve a minimum total R-value of Rt1.40
Glazing system (total system)	**Preliminary Total System Values:** All External Glazing U-value ≤ 3.40 W/m^2K SHGC ≤ 0.31

Appendix D – Low-Toxicity Materials

Total Volatile Organic Compounds (TVOCs) of 95% of all paints, adhesives and sealants are to be in conformance with the grams per litre (g/l) content limits set out in the table below. This requirement is applicable to all internal applications of all types of paints, adhesives or sealants applied on-site, including both exposed and concealed applications. If exterior grade products are used in an internal application, then these must also meet the requirements.

The following items are excluded from this requirement:

- Glazing film, tapes, and plumbing pipe cements;
- Paints, adhesives and sealants used off-site, for example applied to furniture items in a manufacturing site and later installed in the fit out; and
- Adhesives and mastics used for temporary formwork and other temporary installations.

The product(s) must comply with the following table:

Table 2 Maximum TVOC limits for paints, adhesives and sealants

Product Type	Maximum TVOC Content (g/litre of ready-to-use product)
General purpose adhesive and sealants	50
Interior wall and ceiling paints, all sheen levels	16
Trim, varnishes and wood stains	75
Primers, sealers and prep coats	65
One and two pack performance coatings for floors	140
Acoustic sealants, architectural sealant, waterproofing membranes and sealants, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100

Further, carpets used in the project must either be:

- Certified under a recognised Product Certification Scheme (listed on the GBCA website) or other recognised standards; or
- Compliant with the Total VOC (TVOC) limits specified in the table below.

Table 3 Carpet test standards and TVOC emissions limits

Test Protocol	Limit
ASTM D5116 – Total VOC limit	0.5mg/m^2 per hour
ASTM D5116 – 4-PC (4 – Phenylcyclohexene)	0.05mg/m^2 per hour
ISO 16000 / EN 13419 – TVOC at three days	0.5mg/m^2 per hour
ISO 10580 / ISO/TC 219 (Document N238) – TVOC at 24 hours	0.5mg/m^2 per hour

Appendix E – Engineered Wood Products Formaldehyde Levels

The term "engineered wood products" includes composite wood products and includes raw/ unfinished as well as finished products. Items not covered by these limits include products used in exterior applications, formwork, internal car park applications, re-used products, and raw timber. All emission levels must be established by a NATA or ISO/IEC 17025 registered laboratory as per the testing methodologies in the table above.

Table 4 Formadehyde emission limit values for engineered wood products

Test Protocol	Emission Limit / Unit of Measurement
AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood	≤1.0 mg/L
AS/NZS 1859.1:2004 - Particle Board, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.5 mg/L
AS/NZS 1859.2:2004 - MDF, with use of testing procedure AS/NZS 4266.16:2004 method 16	≤1.0 mg/L
AS/NZS 4357.4 – Laminated Veneer Lumber (LVL)	≤1.0 mg/L
Japanese Agricultural Standard MAFF Notification No.701 Appendix Clause 3 (11) - LVL	≤1.0 mg/L
JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460	≤1.0 mg/L
JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460	≤1.0 mg/L
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	≤0.1 mg/ m^2hr
ASTM D5116 (applicable to high pressure laminates and compact laminates)	≤0.1mg/m^2hr
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	≤0.1 mg/m^2hr (at 3 days)
ASTM D6007	≤0.12mg/m^3**
ASTM E1333	≤0.12mg/m^3***
EN 717-1 (also known as DIN EN 717-1)	≤0.12 mg/m^3
EN 717-2 (also known as DIN EN 717-2)	≤3.5 mg/m^2hr
**The test report must confirm that the conditions of this table comply for the particular wood product type, the final results must be presented in EN 717-1 equivalent (as presented in the table) using the correlation ratio of 0.98.	
*** The final results must be presented in EN 717-1 equivalent (as presented in the table), using the correlation ratio of 0.98.	

Appendix F – Daylight Assessment

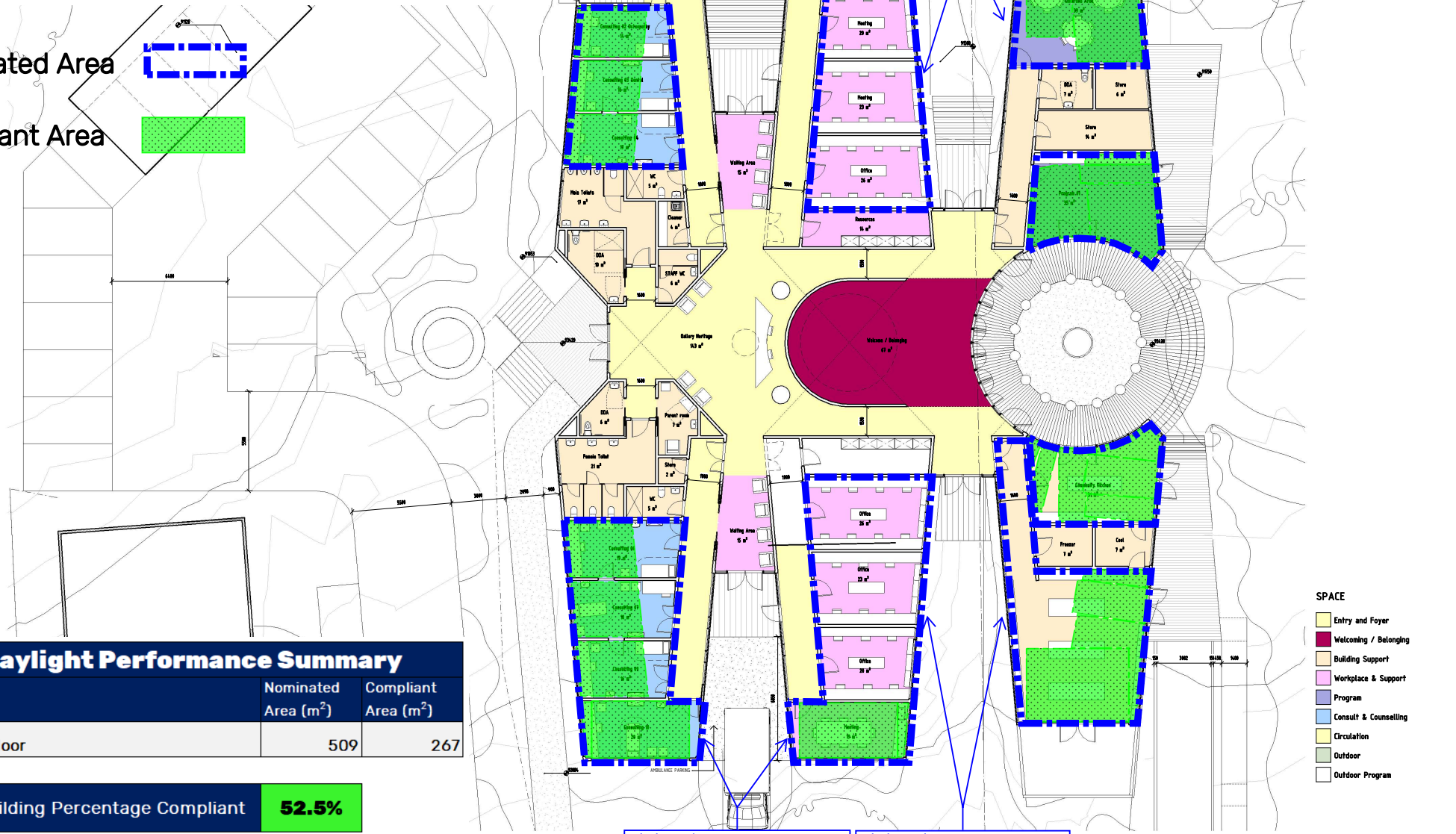
See the following pages.

Green Star Daylight Hand Calculation

JBA smarter engineering

Nominated Area

Compliant Area



Daylight Performance Summary

Location	Nominated Area (m^2)	Compliant Area (m^2)
Ground Floor	509	267

Total Building Percentage Compliant	52.5%

rev	initial	date	description

All dimensions to be verified on site prior to construction and discrepencies to be clarified with architect.
Do not scale drawings, refer to figured dimensions only.
Architectural drawings are to be read in conjunction with specifications & other consultants documentation.
RL 0 is the benchmark level taken from the floor level of the existing building.
Dimensions and RLs are in mm.
This drawing is copyright.

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GROUND FLOOR PLAN A1.02

HEALSVILLE INDIGENOUS COMMUNITY SERVICES ASSOCIATION

proprietor	YARRA RANGES			rev no	
job no	TH3 OONA	scale	1 : 100	date	22.07.2022
file name	TP	drawn by	ER	issue	PLANNING

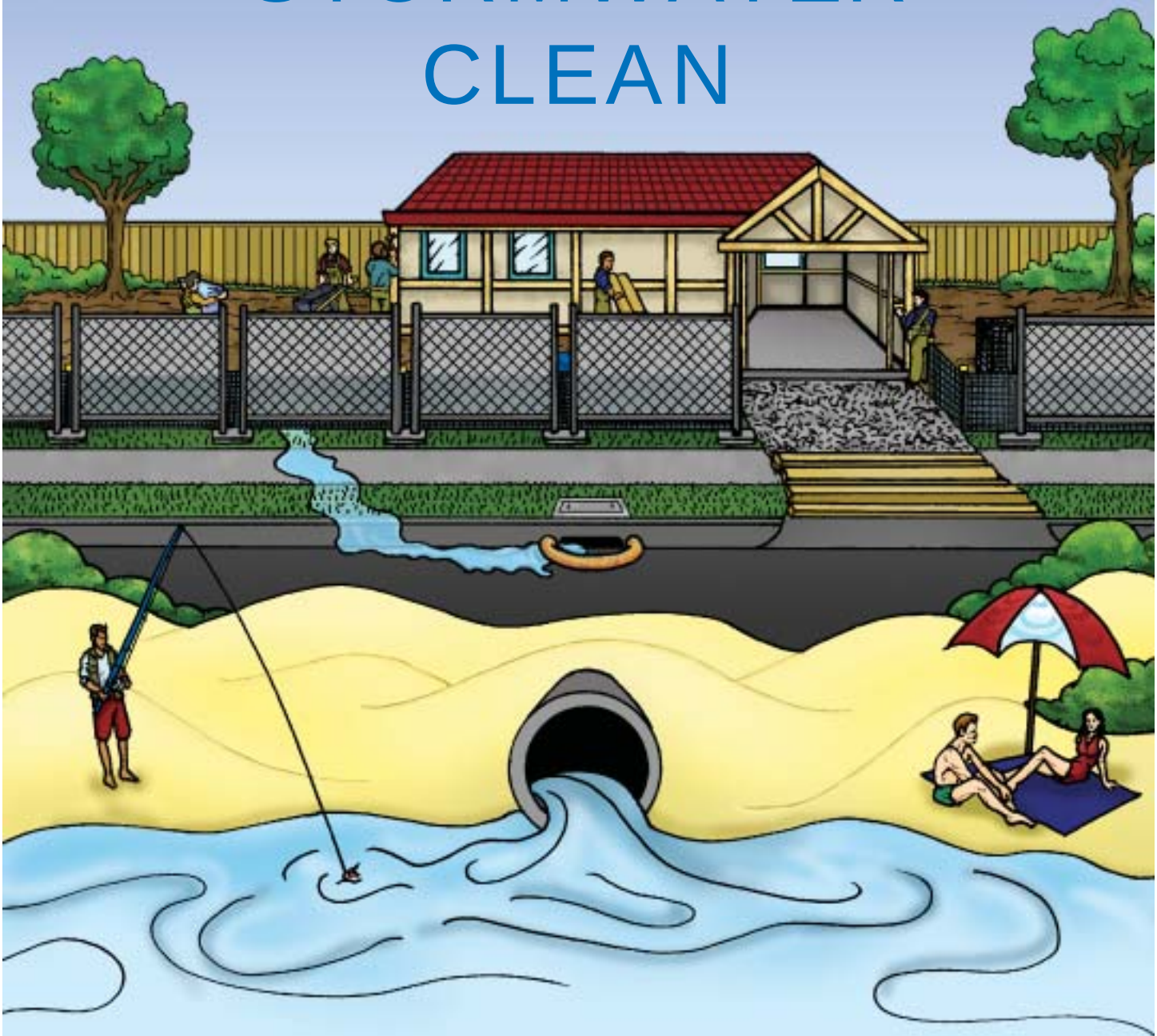
Appendix G – Builder's Guide – Keeping Our Stormwater Clean

The site management plan, which details how the site shall be managed through construction and which sets out future operational and maintenance arrangements, shall be prepared by the builder and included within the construction management plan. This plan shall outline construction measures to prevent litter, sediments and pollution entering stormwater systems.

The following Melbourne Water's 'Keeping Our Stormwater Clean: A Builder's Guide' shall be adopted as a guideline.

See the following pages.

KEEPING OUR STORMWATER CLEAN



A BUILDER'S GUIDE

Information to help you control sediment and litter from your building site and comply with Council and State regulations

Melbourne Water

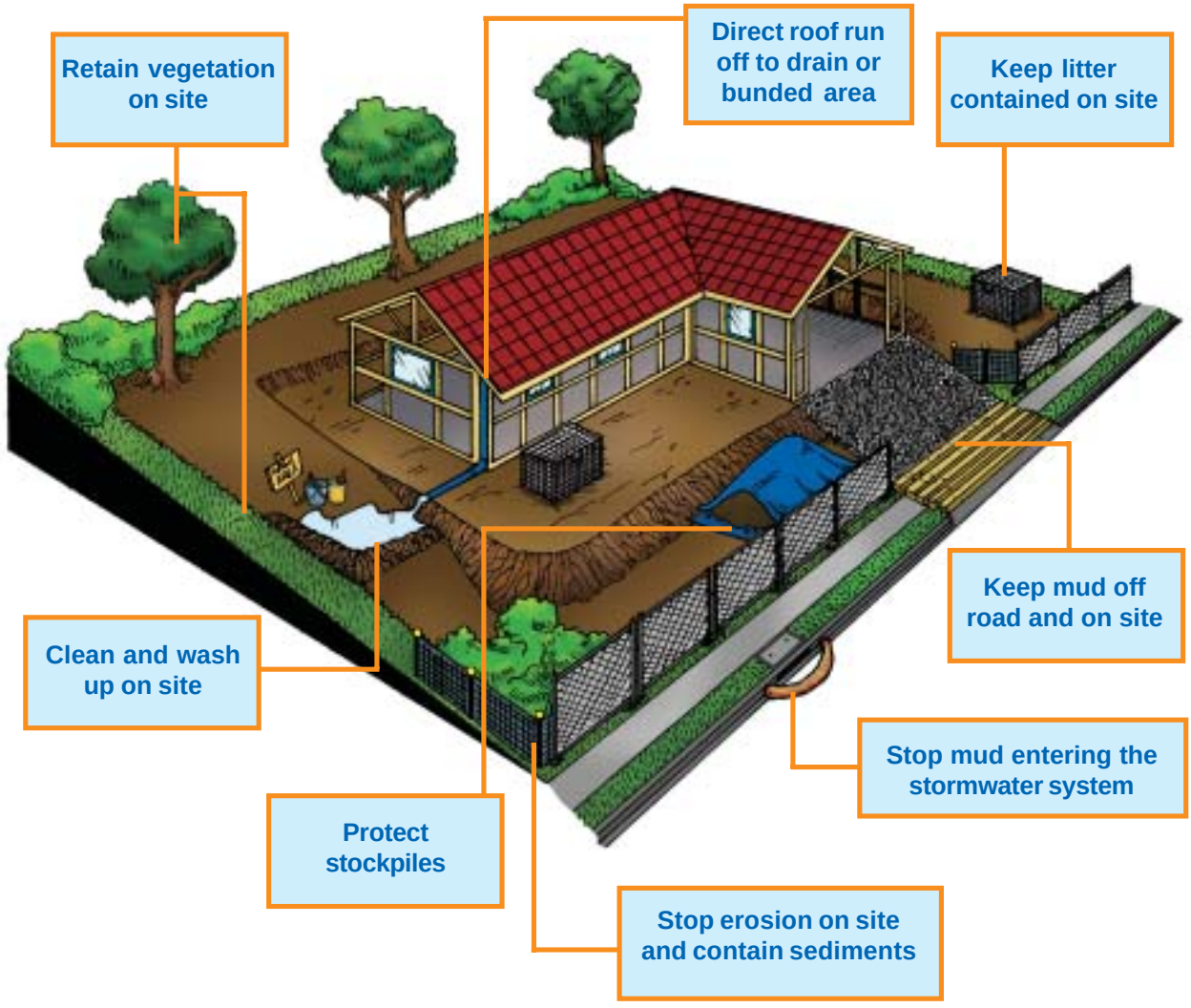
Victoria The Place To Be

EPA VICTORIA

ACKNOWLEDGEMENTS

This revised booklet was originally produced with the support of the Victorian EPA, Melbourne Water, Cities of Kingston, Casey, Hume, Melbourne, Moreland and Moonee Valley.

Check Council requirements and plan before you start work on site



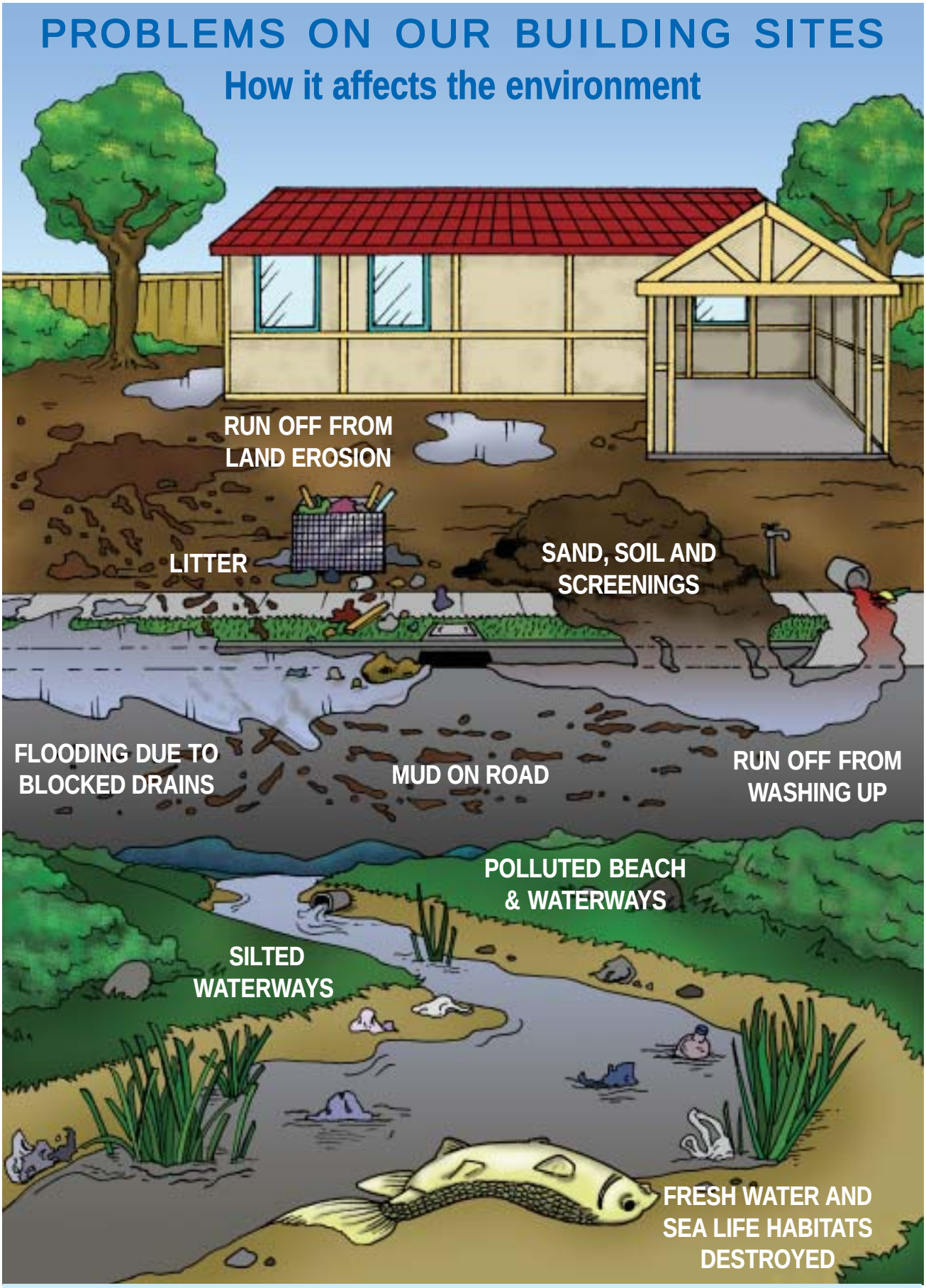
Supplier information for sediment & erosion control on page 3

CONTENTS

6 SITE RULES TO KEEP STORMWATER CLEAN

PROBLEMS ON OUR BUILDING SITES

How it affects the environment



WHY DO I NEED TO PROTECT OUR ENVIRONMENT?

It's the law!

Sediment from building sites can pollute stormwater. There are State and local council laws which make this an offence.

The developer or person managing the building site has the responsibility of making sure that the stormwater is not polluted.

Penalties apply for polluting stormwater.

To enjoy using our environment - now and in the future

Stormwater is not treated and carries pollution to local waterways and bays. Pollution in our stormwater can lead to short and long term damage to our environment.

To benefit builders

The site looks good (which is good for attracting new customers) **and you'll be helping to protect our environment**.

The site has fewer hazards. A well organised site has less loose material lying around causing a hazard. This reduces health and safety issues on a building site.

Downtime is reduced. A well managed and organised site is more efficient. This saves time and money.

USEFUL SUPPLIER INFORMATION

This information is provided for helpful contact details only. The companies are not listed in any particular order and are not necessarily recommended over others that may provide similar services.

SEDIMENT CONTROL

Approximate Price:
Geofabric fencing
100 m roll from $55 to $130
stakes $12 for 10
Filter socks unfilled: 2 m $4.50 filled $8 - $25

Geofabrics Australasia
03 8586 9111 www.geofabrics.com.au
Products: silt fencing

Southern Geosynthetics Supplies
0419 478 238 www.geosynthetics.com.au
Products: Silt fences, Silt Sausages

Statewide River & Stream Management
03 9702 9757 www.stateplanthire.com
Products: silt fence, stakes, silt logs
Installation service and site kits
Approx cost: $220 for 20 m frontage installed, $88 self installation

Treemax
03 98787 4111 www.treemax.com.au
Products:filter fence, silt worm, silt sock

Zerosion
0408 351 566 www.zerosion.com.au
Products: silt fence installation
Approx cost: $215 for up to 20 m frontage

STABILISED DRIVEWAYS

For aggregate look under sand, soil and gravel in the Yellow Pages
Recycled aggregate available from major suppliers.

TEMPORARY DOWNPIPE

Available from major plumbing suppliers

Art Plastic 25 m rolls of temporary plastic downpipe approx: $25

Temporary Flexible Downpipe
03 9786 3711 www.tfd.com.au
$135 per kit - does 2-3 16 sq houses

OTHER EQUIPMENT

Coates Shorco Sykes 131994
Supply : silt fence $125 100 m
Hire: Rumble Grids $180 p/week for 2 panels
Hire: Environmental settlement tanks 4 m tank $542 p/week

PORTABLE TOILETS

See Toilets – Portable in the Yellow Pages

TEMPORARY FENCING

See Fencing Contractors in the Yellow Pages
Australian Temporary Fencing 131716
Victorian Temporary Fencing 03 9484 4000

BRICK AND TILE CUTTING

Slop Mop Recycling Products
www.slopmop.com.au 0418 825 301 Brikasaurus: capture and recycle waste water for brick and tile cutting operations.
Slopmop: water delivery & waste clean up system for use behind concrete saws and grinders.

Useful information is available from:

Master Builders Green Living Builders
www.mbav.com.au
HIA GreenSmart Program
www.greensmart.com.au
Keep Australia Beautiful Victoria – CleanSites Program
http://www.kabv.org.au/
Victorian Litter Action Alliance
http://www.litter.vic.gov.au
Environment Protection Agency Victoria
www.epa.vic.gov.au
See Publication 981 – Reducing stormwater pollution from construction sites
Melbourne Water
www.melbournewater.com.au

SITE RULE 1

Check Council requirements and plan before you start work on site.

Questions to ask BEFORE you start

Planning, BEFORE you start a job, will make a big difference to how well you manage your site. Check Council requirements for site management. Complete a site management plan (one can be found at the back of this booklet).

Where is the lowest point on the site?

Water always runs to the lowest point. It is important to know where this point is when planning your site. It will affect where you put your crossover, stockpile materials and sediment fence. Leave a buffer of vegetation along the lowest boundary.

Where will I put the crossover?

Try to put the crossover as far away from the lowest point as possible. As water runs to the lowest point it is more likely to be wet and muddy. [See Page 16.]

Where will I keep my stockpile?

Stockpiles are best kept on site, as far away from the lowest point as practical. [See Page 12.]

Where will I build my sediment control fence?

Sediment control fences should be built on the lowest side/s of a site prior to erecting a temporary fence. A flat site may not need sediment control fences. [See Page 9.] These are a primary management measure to keep sediment on site.

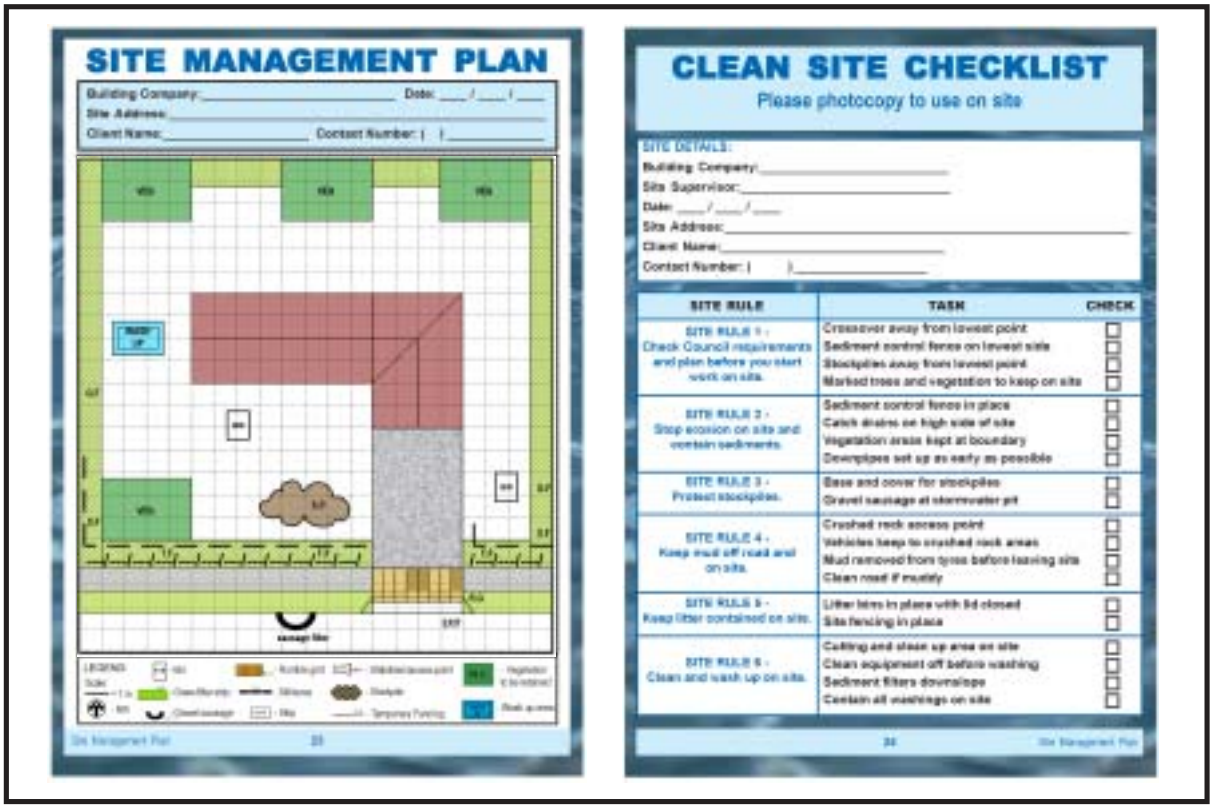
Which trees and vegetation will be kept on site?

Rope or fence off the areas you are going to keep. Keeping vegetation such as grassed areas will help to prevent damage to the surface of the site later on and may trap sediment. [See Page 7.]

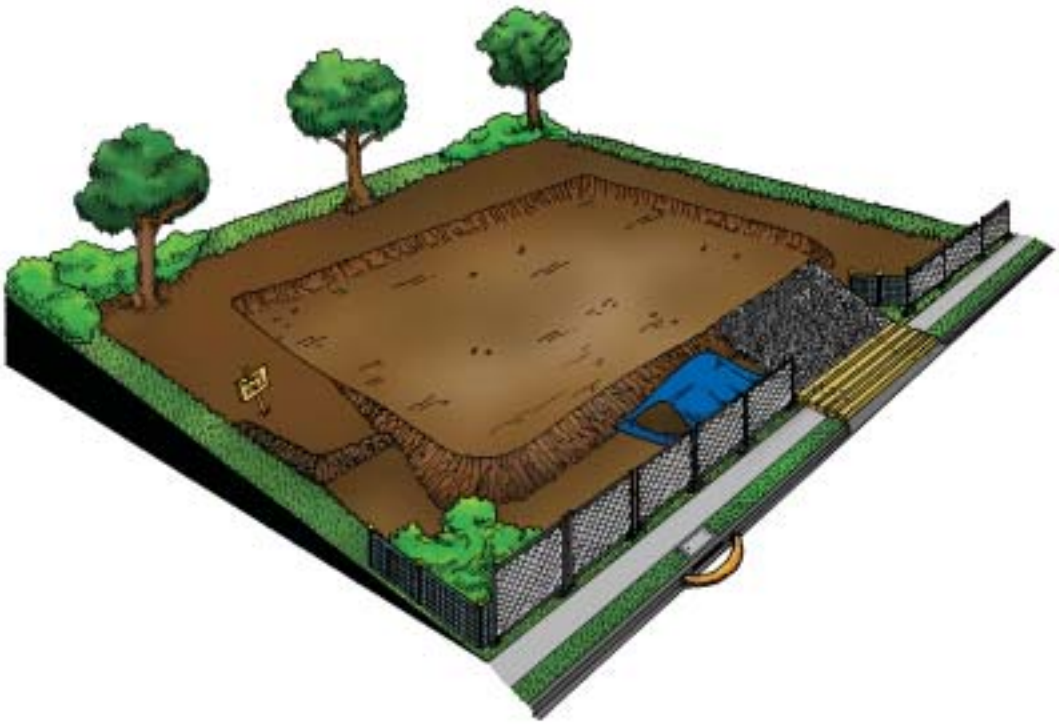
Why fence my site?

Many councils require sites to be fenced. Site fencing helps to keep building activities to the site, helps stop movement of litter, and helps to keep a site safe by stopping members of the public wandering on site. [See Page 20.]

SITE READY TO START JOB



For copy of plan & checklist photocopy pages 23 & 24.



SITE RULE 2

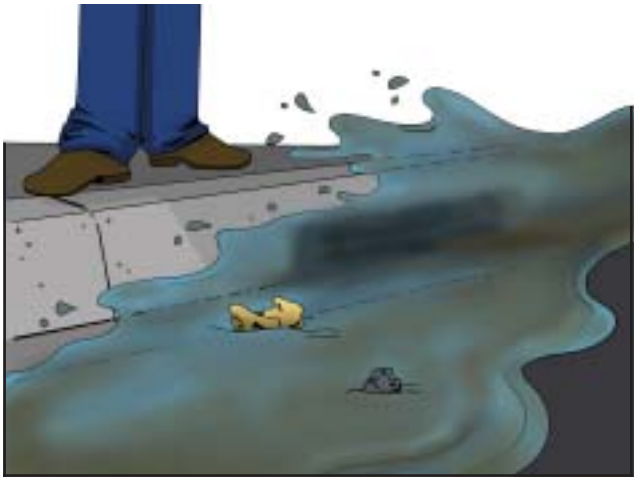
Stop erosion and keep sediment on site

Why is erosion a problem?

Sediment escaping from building sites can:

1. Make roads and footpaths slippery for vehicles and pedestrians, increasing public liability risk.

2. Enter the stormwater system and make stream and river water cloudy which can kill plants and animals in creeks and the bay.



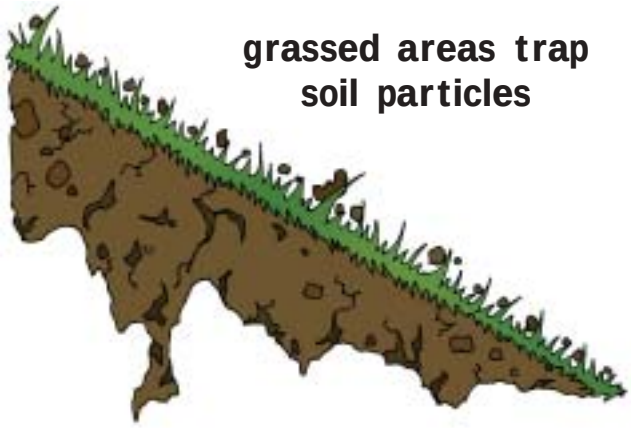
3. Cause blockages to the stormwater system including the side entry pit and pipes, increasing the chance of flooding and requiring regular cleaning.

4. Overload and clog local stormwater filtration systems such as raingardens and swales.

METHODS TO CONTROL EROSION

Control Method 1 - Keep areas of vegetation as a buffer strip at the site boundary.

To prevent sediment leaving site use existing grassed areas and a sediment control fence.



Vegetation helps protect the soil from the effects of rain and surface water by:

- Slowing the flow of water across the ground. Fast water is able to carry more soil particles off site
- Holding the soil together and minimising erosion
- Acting as a filter to trap soil particles.

Decide what areas of vegetation you are going to keep on site. Mark and protect trees, shrubs and grassed areas that you are keeping. Then apply for the relevant permits to remove vegetation.

Protect areas close to the boundary, drains and gutters, and where surface water flows may carry sediment off site.

Control Method 2 - Early downpipe connection

Connecting downpipes to the stormwater or onsite detention system has a number of benefits:

- Less drainage problems on site
- Less mud on site after rain
- A safer site
- Reduce damage to building foundations
- Less downtime after storms
- Projects get finished sooner.

Aim to have the downpipes connected as soon as the roof is installed (temporary or permanent).

Control Method 3 - Pipe roof water onto a grassed or bunded area.

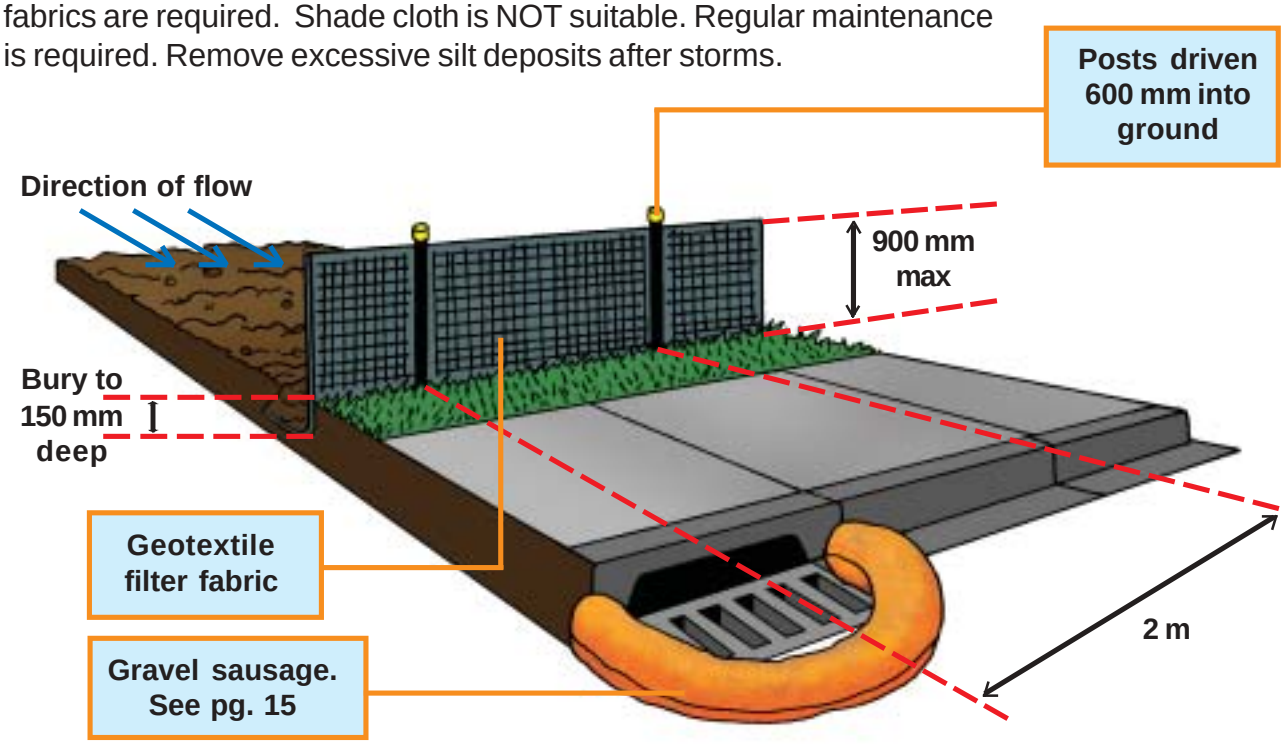
If you cannot connect to the stormwater system, pipe the water away from the building onto a vegetated area where there is good ground cover or to a bunded area.

This lets water seep into the ground with less damage to the surface of the soil.

METHODS TO CONTAIN SEDIMENT ON SITE

Method 1 - Sediment Control Fences

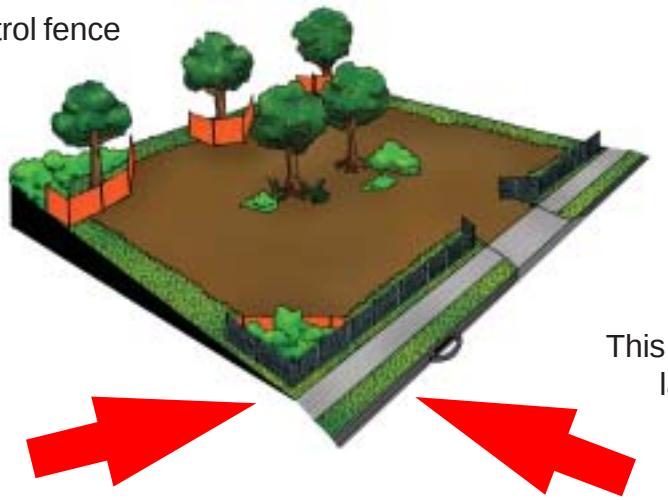
Sediment control fences stop sediment from being washed off site. The fence allows muddy water to pond behind it and for sediment to settle as the water slowly filters through. Geotextile fabrics are required. Shade cloth is NOT suitable. Regular maintenance is required. Remove excessive silt deposits after storms.



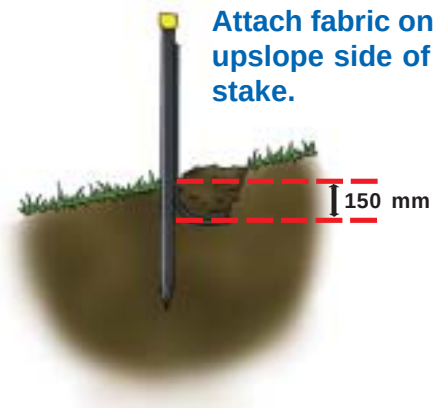
TO BUILD A SEDIMENT CONTROL FENCE:

a) Identify the low point of site.

Place sediment control fence along boundaries where the low point is.



This is the point where the land will allow water to carry sediment off the building site.



b) Dig a trench along the fence line before temporary site fencing is installed.

The trench will be used to bury the base of the sediment control fabric.

The trench should be 150 mm deep.

c) Put in 1500 mm wooden posts (38 mm) or star pickets.

Put 1.5 m star pickets at a maximum of 2 m apart and 600 mm deep.

Put 1.5 m wooden posts (38 mm) at 1.2 m intervals (max 2 m) and 600 mm deep.

d) Fix geotextile to posts

Geotextile material allows water to pass through but traps sediments.

Use cable ties or staples to attach the geotextile to the upslope side of the fence posts.

Only join fabric at the pickets with a 150 mm overlap (wrap around post).

e) Spread volume of water.

Put a star picket 1.5 m upslope of the others every 20 m (if the fence is longer than 20 m). This spreads the volume of water that flows through each section of fence.

Turn ends up slope to allow for ponding.

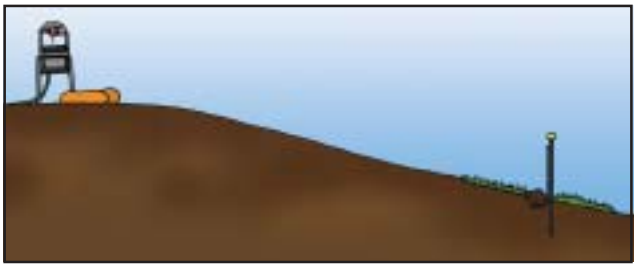
Method 2 - Control dust and slurry from cutting

A large amount of dust can be made from cutting materials such as concrete, bricks and tiles. When mixed with water this material can be turned into slurry and washed into waterways. Cement changes the acidity of water which may then kill water plants and animals. The following methods will help keep this waste on site and out of the waterways:

a) Cut materials on site

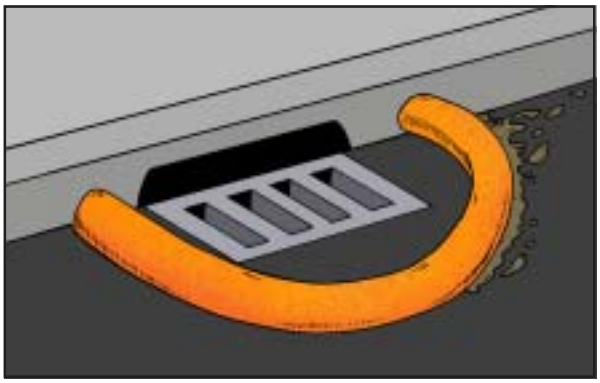
Choose a set area to do all your cutting. This area should be on the building site and away from all stormwater drains.

Equipment is available that captures water used in the cutting process (see page 3).



b) Put sediment control filters downslope

Sediment logs should be placed downslope to catch cutting slurry. A back-up sediment fence may also be used.



c) Use a gravel sausage or sediment log

When cutting must take place near stormwater drains, use gravel sausages or sediment logs.

Alternatively, you can buy sleeves from geotextile companies and fill these with sand.

Always clean up and correctly dispose of captured sediment.

d) Clean up when finished

When you have finished cutting, clean up your equipment in the cutting area.

Use a broom to clean up and get rid of the slurry where it can't get into the stormwater system. Dispose of in waste container

DO NOT HOSE THE SLURRY AWAY

SITE RULE 3

Contain stockpiles on site

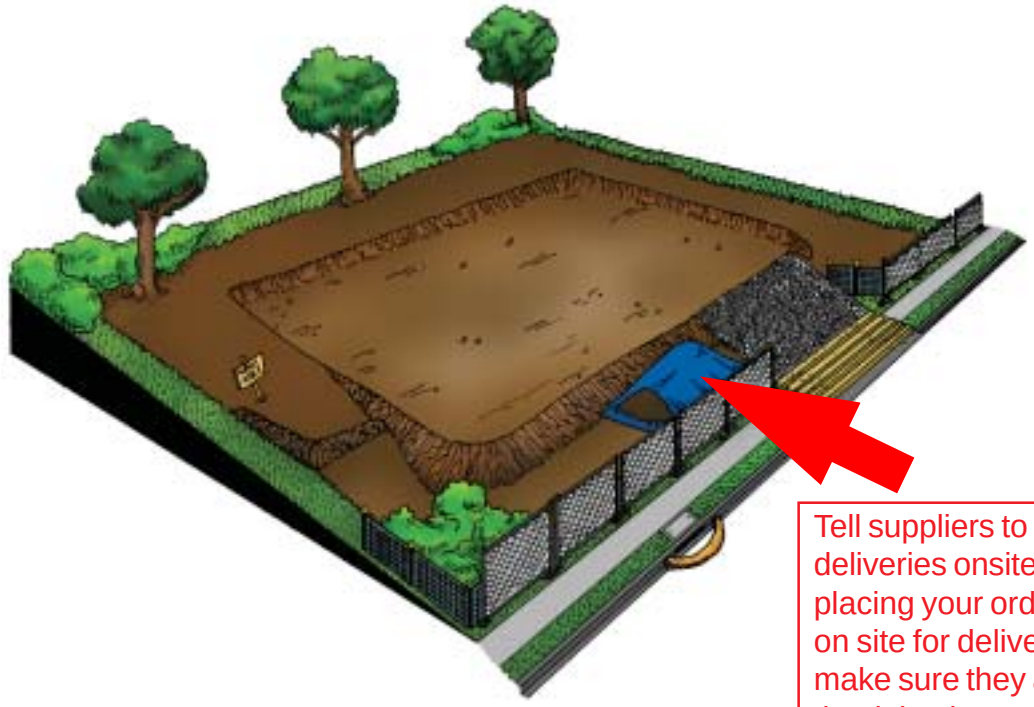
Why are sand, soil and screenings a problem?

Sand, soil, screenings, dust or sludge from concrete and brick cutting, and other materials escaping from building sites can cause many problems.

Putting stockpiles such as sand, gravel, topsoil and mulch across footpaths and roads will cause a hazard to both vehicles and pedestrians.

Sediment can smother stormwater filtering systems including swales and raingardens.

Stockpiles should be stored on site, not on footpaths or roads.



Tell suppliers to place deliveries onsite when placing your order or be on site for deliveries to make sure they are put in the right place.

Stockpiles not stored properly can get washed or blown away and pollute the stormwater.

This is particularly true of stockpiles that:

- Are high
- Have steep sides
- Are put on hard surfaces where they can be blown or washed away.

KEEPING STOCKPILES ON SITE

Place the stockpile in a designated area on site, and upslope of the sediment control fence.

If exposed for some time, stockpiles should be covered with a tarp.

In some cases it may be impossible to store stockpiles on site. In this case, a different set of control methods will be used.

WHEN UNABLE TO STORE STOCKPILES ON SITE

You may have to store a stockpile off site (although never on the footpath, gutter or road). Contact the council to make sure that you have the appropriate council permits.

The council will tell you how stockpiles stored off site are to be managed. Materials may be stored on tarps or on pallets. Containers such as rubbish skips with opening sides that you can get into easily are a good idea.

Material must not get into drains, gutters or the stormwater system

The following control methods can be used when storing materials or working off site.

Method 1 - Cover Stockpile

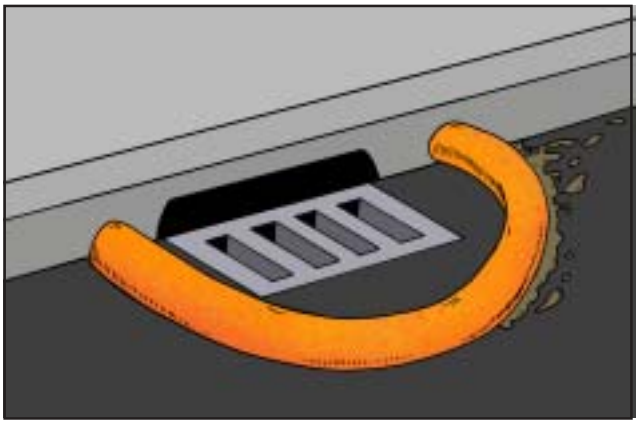
a) Place a tarp, plastic or bunded pallet under the area where the stockpile will be placed.

b) Place a secured covering over the stockpile.

c) Then place sediment control logs around the downslope base of the stockpile.

Method 2 - Protect Downstream Stormwater Pit with a Gravel Sausage or Sediment Log

A gravel sausage or sediment log is a temporary collection device that can be used when stockpiles are stored or cutting is done off site.
It is also a useful precautionary measure at all sites.

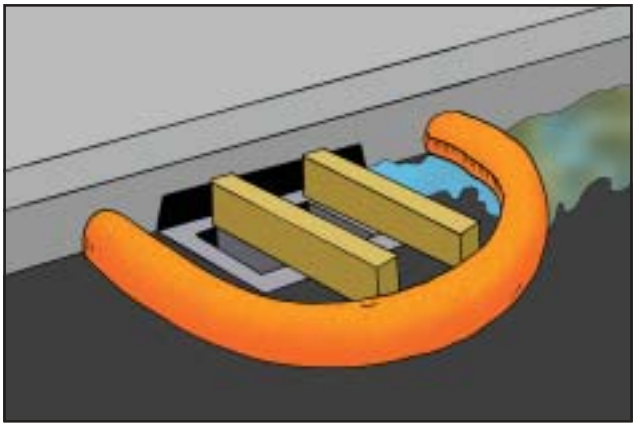


TO BUILD A GRAVEL SAUSAGE:

a) Make the sausage sleeve

A gravel sausage is made from a geotextile sleeve filled with 25 - 50 mm gravel.

The gravel sausage should be 150 mm high.



b) Put the gravel sausage across the opening of the inlet pit

Make sure that the sausage is tight with the kerbing on the upslope side of the inlet pit and extends beyond the grate.

There should be a 100 mm gap between the front of the pit and sausage. Use wooden blocks to keep the 100 mm gap.

c) Clean out gravel sausage regularly

When soil and sand builds up around the gravel sausage, this should be collected and disposed of on site.

Regular maintenance is required.

DO NOT HOSE SEDIMENT DOWN THE GUTTER

SITE RULE 4

Keep mud off road and on site

Why is mud a problem?

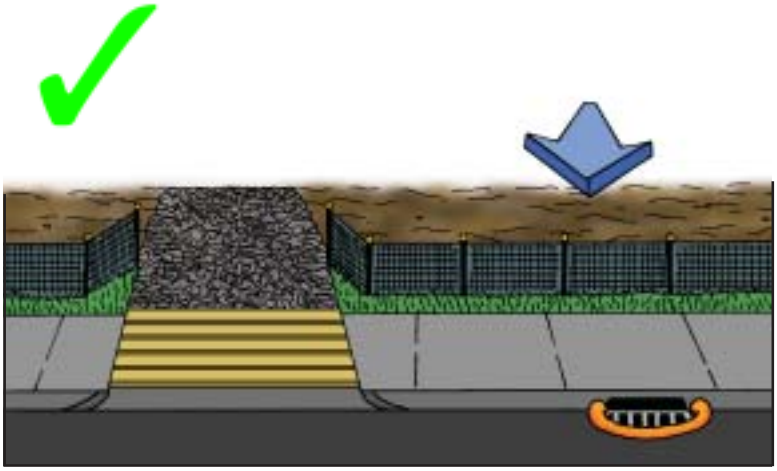
Two things happen when vehicles go on and off the site:

1. The surface area of the site is damaged making it dangerous.

2. Mud is carried back onto the roads and footpaths, and washes into the stormwater system.

METHODS TO CONTROL MUD

The following simple methods will help you to protect the surface of your site and help stop vehicles from dropping mud on the road from their wheels. The best way to do this is to put crushed rock on the crossover or access point of your building site.



Putting crushed rock on the access point of your site is a good way to prevent damage and provide a dry access point for vehicles. Where possible park vehicles off site.

Make sure gravel does not collect in the gutter or on the footpath.

Control Method 1: Build a crushed rock crossover

Remove a 3m or greater strip of soil from road (or where concrete crossover ends) to nearest building point or a minimum of 5 m.

Use road base or 40 mm aggregate or crushed rock to a depth of 200 mm.

Restrict vehicle access to this point.

Control Method 2: Keep to crushed rock path

Only drive where you need to. Keep to a set path (preferably on crushed rock).

Control Method 3: Remove mud from tyres

Use a shovel to remove mud from truck tyres before leaving site.

Control Method 4: Clean road

If mud goes on road, remove as much as possible and put it back on site.

Use a broom or a shovel.
DO NOT USE A HOSE.

SITE RULE 5

Keep litter contained on site

Why is litter a problem?

Many building sites have both building rubble and other rubbish spread across them.

This causes many problems:

You may now have an **UNSAFE WORK ENVIRONMENT!**
This could increase the chance of legal and public liability problems

Litter blowing off site can block stormwater drains.

Litter may spoil local creeks and eventually find its way to the coast.

METHODS TO CONTROL LITTER

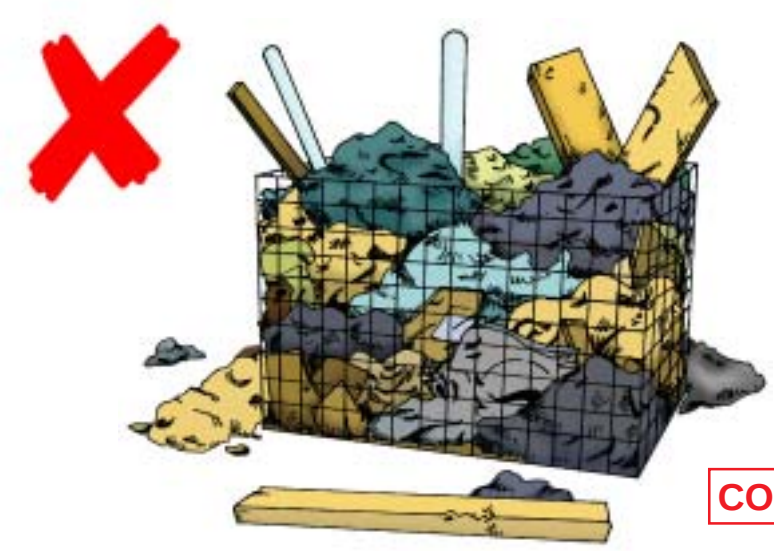
The following simple methods will help you to stop litter leaving your site or being a hazard on site.

Control Method 1: Litter bins or covered skips

A mesh bin with a closeable lid is suitable for larger items like cardboard boxes, plastic wrapping and polystyrene.

Mesh to be 50 mm or smaller

A smaller bin is okay for smaller rubbish like paper, food wrapping and drink containers that may be blown off site. Council bins may be restricted from building sites.



Empty the litter bin regularly. Don't allow overflow. Where possible, collect the materials from the litter bin for recycling and /or keep different materials in separate bins.

CONSIDER A RECYCLING BIN

Control Method 2: Site fencing

Site fencing will help to keep litter from being carried off site by wind or water and provide security.

A FENCE DOES NOT NEGATE THE NEED FOR A BIN.

Check council requirements for temporary fencing and avoid trip hazards on footpath.

Remember to install a sediment control fence prior to installation of the temporary fence.

SITE RULE 6

Clean and wash up on site

Why is washing up a problem?

When cleaning up after painting, plastering or concreting it's most important to keep the wash water out of the stormwater system.

Problems to the environment include:

1. Oil based paints form a thin film over the surface of the water. This starves water plants and animals of oxygen

2. Paints and petrol chemicals can contain toxic compounds

3. Concrete changes the acidity of waterways which can kill water plants and animals. Concrete washings can harden and block drains

4. Roads around a building site can become dirty, slippery and dangerous.

METHODS TO CONTROL WASHING UP

The following simple methods will help you to stop the contamination of stormwater from paint, plaster or concrete washings.

Control Method 1: Have a set washing up area

Choose a set area to do all your washing up. This area should be on the building site and away from all stormwater drains. It should be bunded and contain wash out barrels.

You could use the same area you have chosen for tile and brick cutting.
Contain chemicals and slurry onsite.
Put sediment control fences downslope.

NOTE: SEDIMENT CONTROL FENCES WILL NOT STOP CHEMICALS

Control Method 2: Get rid of concrete slurry on site

Collect wash water from concrete mixers and pumps in a wheel barrow and get rid of it in your wash area. You can also safely get rid of concrete slurry by tipping small amounts in a ditch lined with plastic or geotextile liners. When the water evaporates or soaks into the surface the solids can then be put into a skip bin or recycled in construction or as road base.

Control Method 3: Clean equipment off before washing

Brush dirt and mud off equipment before you wash it. Spin rollers and brushes to remove paint before you wash them in a wash out bin.

You will then need less water to clean this equipment.

Control Method 4: Clean painting tools carefully

Use one container to wash the brush and another to rinse it. Let the first container stand overnight to let solids settle. Then pour out the water on to the ground if it is not too dirty and put settled solids in a bin.

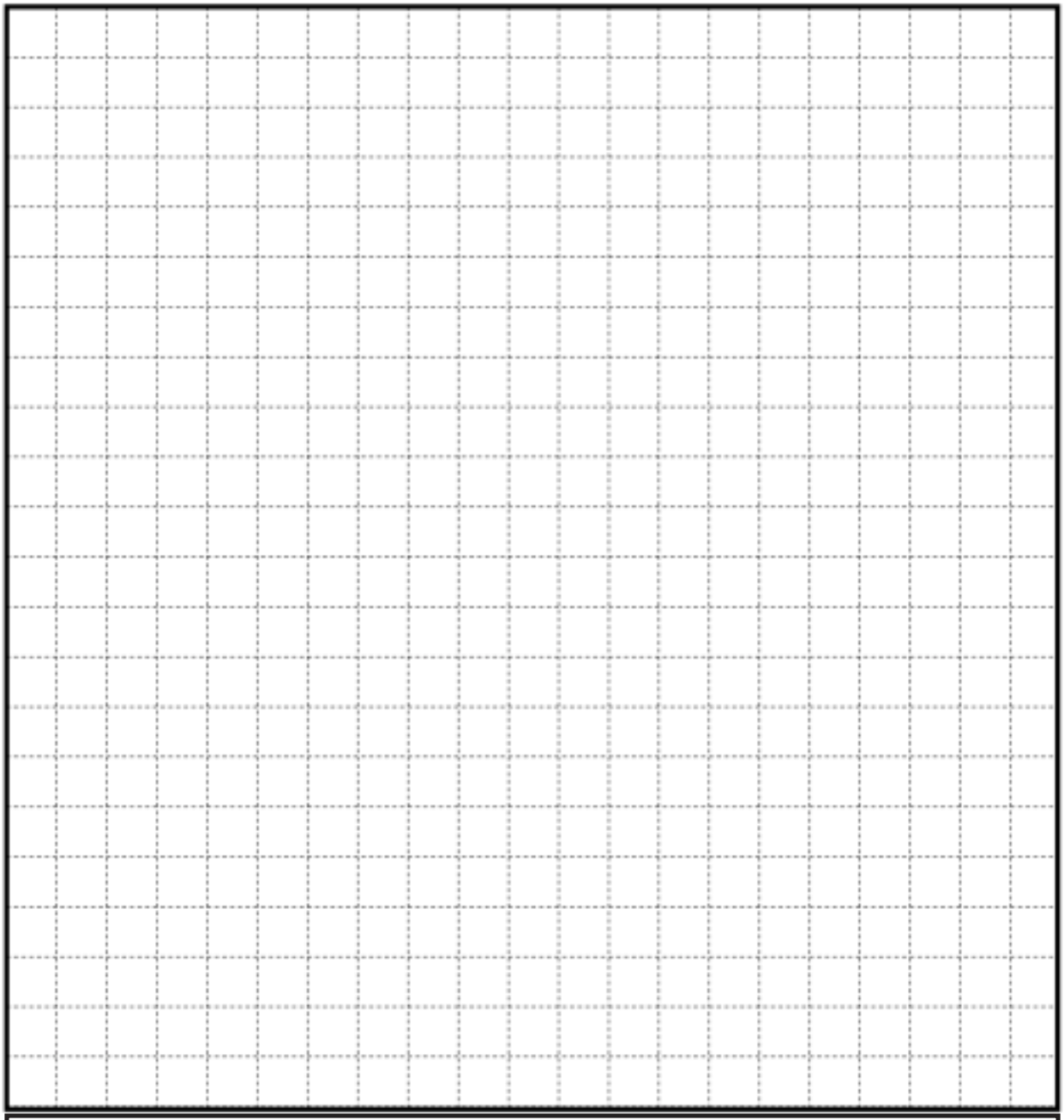
Wash oil based paints in solvent baths until clean. DO NOT PUT THE SOLVENT ON THE GROUND. Contact a waste disposal company for removal.

SITE MANAGEMENT PLAN

Building Company:_____ **Date:** ____ / ____ / ____

Site Address:_____

Client Name:_____ **Contact Number: ( )** _____



LEGEND:

Scale:

= 1 m

- Nth

- Bin

- Grass filter strip

- Gravel sausage

- Rumble grid

- Silt fence

- Skip

- Stabilised access point

- Stockpile

- Temporary Fencing

VEG. - Vegetation to be retained

- Wash up area

CLEAN SITE CHECKLIST

Please photocopy to use on site

SITE DETAILS:

Building Company:_____ **Date:** ____ / ____ / ____

Site Supervisor:_____

Site Address:_____

Client Name:_____ **Contact Number: ( )** _____

SITE RULE	TASK	CHECK
SITE RULE 1 - Check Council requirements and plan before you start work on site.	Crossover away from lowest point	☐
	Sediment control fence on lowest side	☐
	Stockpiles away from lowest point	☐
	Marked trees and vegetation to keep on site	☐
SITE RULE 2 - Stop erosion on site and contain sediments.	Sediment control fence in place	☐
	Catch drains on high side of site	☐
	Vegetation areas kept at boundary	☐
	Gravel sausage at storm water pit	☐
	Downpipes set up as early as possible	☐
SITE RULE 3 - Protect stockpiles.	Base and cover for stockpiles	☐
	Gravel sausage at stormwater pit	☐
SITE RULE 4 - Keep mud off road and on site.	Crushed rock access point	☐
	Vehicles keep to crushed rock areas	☐
	Mud removed from tyres before leaving site	☐
	Clean road if muddy	☐
	Clean stormwater pit and maintain gravel sausage	☐
SITE RULE 5 - Keep litter contained on site.	Litter bins in place with lid closed	☐
	Site fencing in place	☐
SITE RULE 6 - Clean and wash up on site.	Cutting and clean up area on site	☐
	Clean equipment off before washing	☐
	Sediment filters downslope	☐
	Contain all washings on site	☐

6 RULES FOR A CLEAN WORKSITE

SITE RULE 1 -

Check Council requirements and plan before you start work on site.

SITE RULE 2 -

Stop erosion on site and contain sediments.

SITE RULE 3 -

Protect stockpiles.

SITE RULE 4 -

Keep mud off road and on site.

SITE RULE 5 -

Keep litter contained on site.

SITE RULE 6 -

Clean and wash up on site.

Melbourne Water

Victoria The Place To Be

EPA VICTORIA

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Melbourne Water on 131 722
or email enquiry@melbournewater.com

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