

ADVERTISED PLAN

Sustainability Management Plan
7 Princes Hwy, Dandenong South

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Proposed Development
7 Princes Hwy, Dandenong South

Sustainability Management Plan

June 2024

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S4790c SMP.V2

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Version	Date of Issue	Description	Author	Approved
V1	06-11-2023	For Council Approval	JW	LR
V2	05-06-2024	For Council Approval Updated to accord with revised site plan	PC	PC

1. Introduction

This Sustainability Management Plan (SMP) has been prepared to assist the design, construction and operation of the proposed warehouse development at 7 Princes Hwy, Dandenong South, which is to include eight tenancies, each with ancillary office area and amenities.

Sustainable Development Consultants have assessed the proposed development and provided input to the design team. This SMP captures initiatives necessary to ensure that the development meets the sustainability requirements of the City of Greater Dandenong as outlined in Section 1.3 of this report.

This document has been prepared by Sustainable Development Consultants with reference to the architectural drawings prepared by Concept [y] Architecture.

1.1 Site Description

The site at 7 Princes Hwy, Dandenong South is on the southeast corner of Princes Highway and the South Gippsland Highway on the edge of the industrial area of Dandenong South. It is approximately 31km south-east of the Melbourne CBD. The larger site currently contains several warehouses, offices, and auxiliary buildings. The proposed development is to construct five new warehouses with ancillary office areas and amenities. This includes the refurbishment and upgrade of an existing office building.

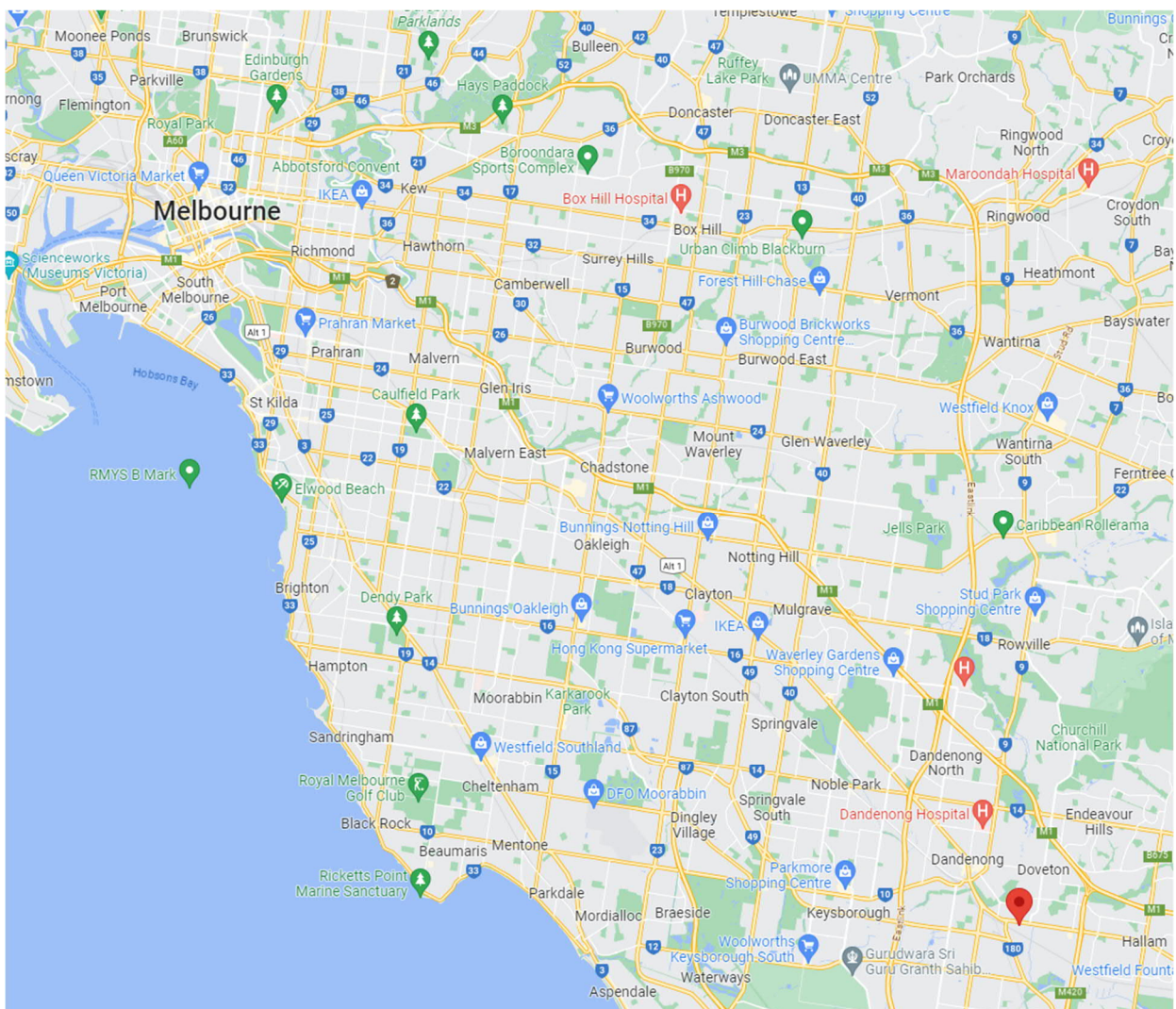


Figure 1: Location of 7 Princes Hwy, Dandenong South in relation to the Melbourne CBD (Source: Google Maps)

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Figure 2: Aerial image of the development site at 7 Princes Hwy, Dandenong South (Source: LandChecker)

1.2 Development Summary

Set out in Table 1 below is a development summary for this project.

Table 1: Development Summary

Development Information	
Total Site Area	Approximately 122,327m ²
Warehouse 1A & Office	2,100m ²
Warehouse 1B & Office	3,530m ²
Warehouse 2 & Office	1,550m ²
Warehouse 3A & Office	17,780m ²
Warehouse 3B & Office	6,880m ²
Warehouse 3C & Office	5,630m ²
Warehouse 4 & Office	15,720m ²
Warehouse 5 & Office	13,930m ²
Car Parking	516 spaces with 16 of these to be EV spaces (2 for each tenant) with charging infrastructure that can be increased.

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1.3 City of Greater Dandenong Requirements

The City of Greater Dandenong is committed to making Dandenong a more sustainable place to live, work and play. Critical to achieving this commitment is for development to meet appropriate environmental design standards.

The City of Greater Dandenong expects that this project should achieve best practice in environmentally sustainable development from the design stage through to construction and operation. To comply with the Local Planning Scheme including Clause 22.06 *Environmentally Sustainable Development* this project is required to satisfy the objectives as set out within the following categories, where applicable:

- Energy Efficiency
- Water Resources
- Indoor Environment Quality
- Stormwater Management
- Transport
- Waste Management
- Urban Ecology

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This requires a Sustainability Management Plan (SMP) which demonstrates how for this project, the relevant policy objectives will be achieved.

The City of Greater Dandenong also requires that this project addresses the following planning scheme provisions:

- Clause 22.06 *Environmentally Sustainable Development*
- Clause 53.18 *Stormwater Management in Urban Development*

In January 2020, the City of Greater Dandenong declared a climate emergency and as part of this, are committed to enhanced Environmentally Sustainable Design.

1.4 ESD Assessment Tools

There are several calculators and modelling programs available in Victoria to assess proposed developments against benchmarks for ESD, as set by the Victorian government, local councils and the Building Code of Australia.

For this project, set out below are the assessment tools that have been adopted for this project.

1.4.1 BESS

BESS was developed by the Council Alliance for Sustainability in the Built Environment (CASBE). This tool assesses the energy and water efficiency, thermal comfort and overall environmental sustainability performance of new buildings or alterations. It was created to demonstrate that new development meets sustainability requirements as part of a planning permit application.

A BESS assessment has been conducted for the proposed development. This provides a guide as to the level of sustainability achieved by the proposed development in line with the Council's ESD requirements.

Each target area within the BESS tool generally receives a score of between 1% and 100%. A minimum score of 50% is required for the energy, water and indoor environment quality (IEQ) areas, whilst a 100% score is required for stormwater. An overall score of 50% for the project represents 'Best Practice' while a score over 70% represents 'Excellence'.

The results of the BESS assessment can be found in Appendix 1 of this report.

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2. Sustainability Initiatives

The following sections outline the initiatives that will be incorporated into the development throughout its design, construction and operation. Initiatives that are included to contribute towards the BESS benchmark have a reference next to them, e.g. (BESS Management 4.1). Some initiatives without the BESS reference have also been included as they also contribute to the overall sustainability of the development.

The following sections, as well as nominating the sustainability initiatives, also identify the party/parties responsible for implementation of the initiative, and the stage at which implementation will be demonstrated.

The following are the broad project stages:

1	Design Development	<ul style="list-style-type: none"> • Consultants develop conceptual design drawing to a detailed stage suitable as a basis for preparing working drawings - Integration of architectural, services, structure and site attributes • Checking compliance with all statutory requirements, codes and standards • Arranging special surveys or reports as required
2	Construction Documentation	<ul style="list-style-type: none"> • Architectural and services drawing sets completed • All specialist reports completed • All necessary planning and building consents obtained as required by authorities
3	Construction	<ul style="list-style-type: none"> • All work carried out onsite – site preparation, construction, alteration, extension, demolition • Purchase of all materials / certification • Evidence gathering from subcontractors • Commissioning
4	Post Occupancy	<ul style="list-style-type: none"> • Operation and Maintenance • Education – Building Users Guides

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2.1 Building Management

Initiatives included in this section promote adoption of environmental initiatives at different stages of the project – not just in the project design stage.

Design Requirements

Design Requirements	Responsibility & Implementation	Project Stage
Thermal Performance Modelling – Non-Residential (Management 2.3) Preliminary JV3 energy modelling will be undertaken in accordance with NCC 2019 Section J. Completing energy modelling in the early project stages allows improved thermal performance outcomes, including passive design, to be selected before structural facets of building design become locked in, after which optimisation can be more difficult and costly. The energy modelling process highlights areas of the development which may be causing thermal performance issues, which can be troubleshooted via various iterations until a compliant and/or more positive outcome is found.	ESD Consultant / Architect / Services Consultant	Design Development/ Construction Documentation
Metering and Monitoring (BESS Management 3.2 & 3.3) Sub-meters will be provided for each major water and electricity usage in the building. These could include for: <ul style="list-style-type: none"> • Rainwater for irrigation • Rainwater for toilet flushing 	Services Consultant	Construction Documentation

Design Requirements	Responsibility & Implementation	Project Stage
<ul style="list-style-type: none"> Potable water to amenities <p>This could also include electricity for:</p> <ul style="list-style-type: none"> Lighting and power to warehouses Lighting and power to offices Power for lifts Mechanical board Solar PV (generation) 	<p style="color: red; text-align: center;">This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright</p>	
<p>Building User Guide (BESS Management 4.1)</p> <p>A Building User's Guide (BUG) will be developed and made available to building management staff. It will comprehensively feature the manuals of the systems installed in the development and offer relevant suggestions for sustainable operation.</p>		
	Architect/ ESD Consultant	Construction Documentation

2.2 Energy Efficiency

The development will minimise energy use through best practice building envelopes and efficient heating and air conditioning, as well as efficient hot water systems and lighting.

Design Requirements	Responsibility & Implementation	Project Stage
<p>Thermal Performance (Energy 1.1 & 2.1)</p> <p>To meet the BESS best practice requirements for thermal efficiency, a Part J assessment (JV3 modelling) will be undertaken during the detailed design stage of the project to demonstrate the ability of the design to meet the requirements of Section J of the BCA 2019 for building fabric.</p>		
	ESD Consultant / Architect / Services Consultant	Construction Documentation
<p>Heating and Cooling Systems (BESS Energy 2.1, 2.2 & 2.3)</p> <p>Heating and cooling for the office space will be provided by energy efficient air conditioners, selected with minimum COP/EER of 3.5, and within one Star of the most efficient equivalent capacity unit available, or with COP/EER not less than 85% of the COP and EER of the most efficient equivalent capacity unit available.</p> <p>All ventilation systems must be selected to meet DTS requirements of Part J5.</p> <p>No mechanical heating and cooling will be provided to the warehouse; therefore, the overall energy use from heating and cooling will meet best practice standards for an industrial building of this type.</p>		
	Mechanical Engineer	Design Development
<p>Peak Demand (BESS Energy 2.2)</p> <p>Peak demand of the proposed building will be no higher than that of the reference building. This will be achieved via the consideration of internal blinds, suitable glazing performance, lighting power density and HVAC system efficiency.</p>		
	Mechanical Engineer	Design Development
<p>Hot Water (BESS Energy 2.3 & 3.2)</p> <p>Hot water for the development will be provided via electric heat pumps or electric hot water systems. If heat pumps are used the COP will be minimum 3.5.</p> <p>All pipework will be insulated to minimise distribution heat losses.</p>		
	Services Consultant	Design Development

Design Requirements	Responsibility & Implementation	Project Stage
<p>Indoor Lighting (BESS Energy 3.7) The maximum illumination power density (W/m²) of internal lighting will target a 10% reduction against the requirements in Table J6.2a of the NCC 2019 Vol 1.</p> <p>Artificial lighting is also reduced with optimised natural daylight in the warehouse areas through translucent roofing sections and control of lighting via daylight sensors. The warehouse lighting will have daylight sensors whilst office lighting will have motion sensors.</p>	Electrical Engineer	Design Development
<p>External Lighting (BESS Energy 3.3) External lighting will be LED and will have controls (e.g. motion detectors, and timers) to minimise consumption during off-peak times (e.g. 11pm-5am).</p>	Electrical Engineer	Design Development
<p>Lift The design places the lift adjacent to the stairs, making it easier for users to have the choice of using the stairs.</p> <p>An energy efficient lift will be specified that includes measures to specifically reduce stand-by consumption such as:</p> <ul style="list-style-type: none"> • Switching off control devices when the lift is not in motion & using more efficient power supply unit; • LED lights and display; and • Suspension specifically designed to reduce friction. 	Service Consultant	Design Development
<p>Building Sealing All windows, doors, exhaust fans and pipe penetrations will be constructed to minimise air leakage as required by the provisions outlined in Section J3 of the 2019 BCA. This will include the use of seals around operable windows and doors as well as caulking to pipe penetrations, and the addition of self-closing louvers or dampers to exhaust fans.</p>	Architect	Design Development
<p>Renewable Energy Systems - Solar (BESS Energy 4.2) Peak electricity demand to be reduced with the addition of roof-mounted solar photovoltaic arrays. This would generate green energy and help to offset the HVAC and internal lighting loads of the development.</p> <p>Space on the roof of warehouses 1A, 1B & 2 will be allocated for a minimum 25kW solar PV system each. Warehouse 3A, 4 and 5 will hold a minimum 100kW array and 3B & 3C will hold minimum 50kW arrays. The location of the panels will be coordinated with the translucent roof sheeting and services penetrations during design development.</p> <p>This PV systems will reduce mains electricity use and the overall greenhouse gas emissions of the building by producing an estimated 545,294kWh of green electricity per year assuming an inclination of 3° and orientation to the north.¹</p>	Electrical Engineer	Design Development

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¹ Solar PV annual energy generation calculated through BESS for the site located at 7 Princes Highway, Dandenong South

2.3 Water Resources & Stormwater Treatment

Water will be used efficiently throughout the development through efficient fixtures and fittings, and collection and use of rainwater which helps to reduce mains water requirements and diverts stormwater.

Design Requirements	Responsibility & Implementation	Project Stage
<p>Water Fixtures and Fittings (BESS Water 1.1) Efficient water fittings and fixtures will be installed to reduce the volume of mains water used. The following Water Efficiency Labelling Scheme (WELS) star ratings will be specified:</p> <ul style="list-style-type: none"> • Kitchen and Bathroom taps: flowrate ≤4.5L/min (6 Star); • Urinals: ≤0.8L/flush (6 Star or waterless); • Toilets: dual flush, 3/4.5 L/flush (4 Star); and • Showers: ≤6L/min (4 Star) 	<p>Architect / Services Consultant</p>	<p>Design Development</p>
<p>Water Efficient Appliances (BESS Water 1.1) Dishwashers will be minimum of 5 Star WELS rated (if installed by the developer as a part of the contracted building works only).</p>	<p>Developer</p>	<p>Construction Documentation</p>
<p>Rainwater Collection and Reuse (BESS Water 1.1 & Stormwater 1.1) Stormwater will be collected from a minimum 8,000m² roof area to be stored in rainwater tanks with a minimum combined storage capacity of 80,000L. Each warehouse and office will have a minimum of 1,000m² of roof area will be directed to a single 10kL tank. The tanks will be connected to all toilets and urinals in addition to being made available for irrigation.</p>	<p>Civil / Hydraulic Engineer</p>	<p>Design Development</p>
<p>Water Efficient Landscaping (BESS Water 3.1) Landscaping in retained vegetated areas will be drought tolerant and a high proportion of the plant species are to be indigenous to the area. The landscaping will include mulch and soil wetting agents to reduce the potable water which will be required to water these garden areas in future. These areas will not need to be irrigated. New landscaped zones will be irrigated through the rainwater tank around the site by a sub-surface drip irrigation system with moisture sensor override will be specified.</p>	<p>Developer Landscape Architect</p>	<p>Schematic Design / Construction Documentation</p>



Figure 3: Examples of drought tolerant landscaping that could be incorporated into the development design

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Design Requirements	Responsibility & Implementation	Project Stage
Waterless HVAC System (BESS Water 4.1)		
Air-conditioning units will use air-cooled condenser components which will help to reduce the development's overall water usage, whilst also preventing the growth of legionella bacterium which thrive in warm stagnant water.	Mechanical Engineer	Construction Documentation
Fire System Water (BESS Water 4.1)		
The fire test system will not expel potable water for testing, or a minimum 80% of test water from fire sprinkler systems to be captured for reuse.	Fire Services Consultant	Design Documentation

2.4 Indoor Environment Quality

Indoor Environment Quality (IEQ) will be improved through various initiatives which help to create a healthy indoor environment free from toxins with ample supply of daylight and outside air.

Design Requirements	Responsibility & Implementation	Project Stage
Daylight Access (BESS IEQ 1.4)		
<p>Access to natural daylight is extremely important for all occupants and will provide an essential connection with nature and improve occupants' health and well-being.</p> <p>Glazing to office areas and translucent roof sheeting to the warehouses will be designed to provide daylight access and external views in order to reduce reliance on artificial lighting and improve indoor amenity. This provision will be tempered by the requirement to control the solar gains which come through large windows.</p> <p>Daylight penetration through windows/openings will be enhanced with the use of light internal colours, allowing for a better internal reflection of daylight.</p> <p>Daylight modelling will be completed for the proposed design, with the office spaces expected to achieve a minimum daylight factor of 2% across no less than 33% of the nominated floor area. The warehouse spaces are anticipated to achieve a minimum daylight factor of 2% across over 90% of floor area due to the provision of roof lights to a minimum 10% of floor area.</p>	Architect	Construction Documentation
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Daylight Improvement		
Daylight penetration through windows/openings will be enhanced with the use of light internal colours, allowing for a better internal reflection of daylight.	Architect	Construction Documentation
Ventilation – Non-Residential (BESS IEQ 2.3)		
<p>The office HVAC systems will provide outside air at a rate that exceeds the minimum required rate per person outlined in AS 1668.2:2012, by a minimum of 50%, to provide a comfortable and healthy internal environment to the occupants.</p> <p>The warehouse will experience a high level of natural ventilation due to the large number of roller doors.</p>	Architect	Construction Documentation
Volatile Organic Compounds (VOCs) (BESS IEQ 4.1)		
All paints, adhesives and sealants and flooring (including carpets) will not exceed the limits outlined in Appendix 3. Alternatively, products with no VOCs will be selected.	Builder	Construction Documentation

Formaldehyde Minimisation (BESS IEQ 4.1)		
All engineered wood products will have 'low' formaldehyde emissions, certified as E0 or better. Alternatively, products will be specified with no formaldehyde. Emissions limits are listed in Appendix 3.	Builder	Construction Documentation

2.5 Building, Construction and Waste Management

Initiatives included in building, construction and waste management promote adoption of environmental initiatives at different stages of the project – not just in the project design stage.

Design Requirements	Responsibility & Implementation	Project Stage
Construction Waste Management		
<p>The builder will develop a construction waste management plan (CWMP) for the construction phase. This will include the following:</p> <ul style="list-style-type: none"> • Waste generation; • Any waste systems; • Minimisation Strategy; • Performance / Reduction targets; • Bin quantity and size; • Collection frequency; • Signage; and • Monitoring and reporting including frequency and method. <p>The CWMP will include a requirement for not less than 90% of all demolition and construction waste to be recycled or re-used.</p> <p>The CWMP will require that all hazardous substances, pollutants and contaminants must be managed and disposed of in accordance with all state regulatory requirements. Where these materials are treated, or used on site, they must be in accordance with a sanctioned remediation process.</p> <p>The CWMP may form part of a broader Construction Environmental Management Plan (CEMP).</p>	<p>ADVERTISED PLAN</p> <p>Builder</p>	<p>Construction Documentation</p>
Operational Waste – Convenience of Recycling (BESS Waste 2.2)		
<p>Dedicated bin areas will be provided for general waste (landfill), commingled recyclables, and glass. In addition, tenancies will be provided with bins for paper & cardboard recycling. This will assist to minimise the risk of commingled recyclables ending up in landfill.</p> <p>Recycling facilities will be adjacent general waste, but bin colouring and signage will ensure distinction between different waste streams. The recycling facilities of the development will be just as convenient to access as the general waste facilities.</p>	<p>Architect/ Building Owner</p>	<p>Design Development/ Post Occupancy</p>

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Figure 4: Examples of bins separated by waste stream which may be suitable for a development of this type

2.6 Building Materials

Materials initiatives help reduce the use of virgin materials and generating waste and promote the use of materials with lower embodied energy and environmental impacts.

Design Requirements	Responsibility & Implementation	Project Stage
Reused Building Fabric The project will include the reuse of existing building fabric around Office 1A. This will result in significant reduction in embodied carbon associated with the development whilst retaining heritage elements within the new buildings.	Builder	Construction
Concrete Unless prevented by structural engineering considerations or product availability, a minimum of 50% of the concrete mix will contain recycled water (rainwater or purchased recycled water) and at least 10% Supplementary Cementitious Materials (SCMs).	Builder / Structural Engineer	Construction Documentation
Steel Unless prevented by structural engineering considerations or product availability, steel for the development will be sourced from a Responsible Steel Maker ² . Reinforcing steel for the project will be manufactured using energy reducing processes.	Builder / Structural Engineer	Construction Documentation
Timber All timber used in the development will be Forest Stewardship Council (FSC) or Program for the Endorsement of Forest Certification (PEFC) certified, or recycled / reused.	Architect	Construction Documentation
Cables, pipes, floors and blinds All standard uses of cables, pipes, flooring and blinds within the development will either not contain any PVC or will be sourced from a manufacturer/supplier that adheres to the Green Building Council of Australia's <i>Best Practice Guidelines for PVC in the Built Environment</i> .	Services Consultant	Construction Documentation
Insulation Recycled Content Any bulk insulation specified and installed in the development will have a minimum 20% post-consumer recycled material content.	Architect	Construction Documentation

² A Responsible Steel Maker must have facilities with a currently valid and certified ISO 14001 Environmental Management System (EMS) in place and be a member of the World Steel Association's (WSA) Climate Action Program (CAP).

Design Requirements	Responsibility & Implementation	Project Stage
<p>Flooring</p> <p>All flooring will be manufactured from materials/products certified under any of the following:</p> <ul style="list-style-type: none"> • Carpet Institute of Australia Limited, Environmental Certification Scheme (ECS) v1.2; • Ecospecifier GreenTag GreenRate V3.2 and/or • Good Environmental Choice (GECA); <p>Alternatively, floor coverings must be durable, include some eco-preferred content, be modular and/or come from a manufacturer with a product stewardship program and ISO 14001 certification.</p>	Builder/ Architect	Construction Documentation
<p>Non-toxic Durable Materials</p> <p>Materials used in the building will have longer warranties (≥7 years desired) were possible and will be non-toxic.</p>	Architect / Builder	Construction Documentation



Figure 5: Examples of approved environmental labels for products which may be incorporated for the development

2.7 Transport

Design Requirements	Responsibility & Implementation	Project Stage
<p>Cycling Facilities (BESS Transport 1.5)</p> <p>A minimum of two secure bike parking spaces, one male and one female shower with adjoining changing area with one staff locker per eight peak staff are to be provided to each tenancy of the development.</p> <p>This will encourage staff and visitors to adopt cycling as an alternative form of transport.</p>	Architect	Design Development
<p>Electric Vehicle Infrastructure (BESS Transport 2.1)</p> <p>To enhance the development’s ability to reduce vehicle emissions, 16 car parking spaces (2 per tenancy) will be nominated for electric vehicle charging (and provided with charging infrastructure). This will encourage building users to consider purchasing electric vehicles by making their use more convenient.</p> <p>The design of charging infrastructure should take into consideration requirements for further expansion to more spaces as electric vehicles become more prevalent.</p>	Services Consultant	Design Development

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Design Requirements

Responsibility & Implementation

Project Stage

Public Transport

The development has access to a bus stop servicing route.

- 893: Cranbourne Park SC - Dandenong Station

The following bus route is available 700m south of the development, from bus stop Fowler Rd/South Gippsland Hwy

- 892: Casey Central SC - Dandenong Station via Hampton Park SC

Both services link up to Dandenong Railway Station with access to the train services.

- Cranbourne line
- Pakenham line

Inherent in Location

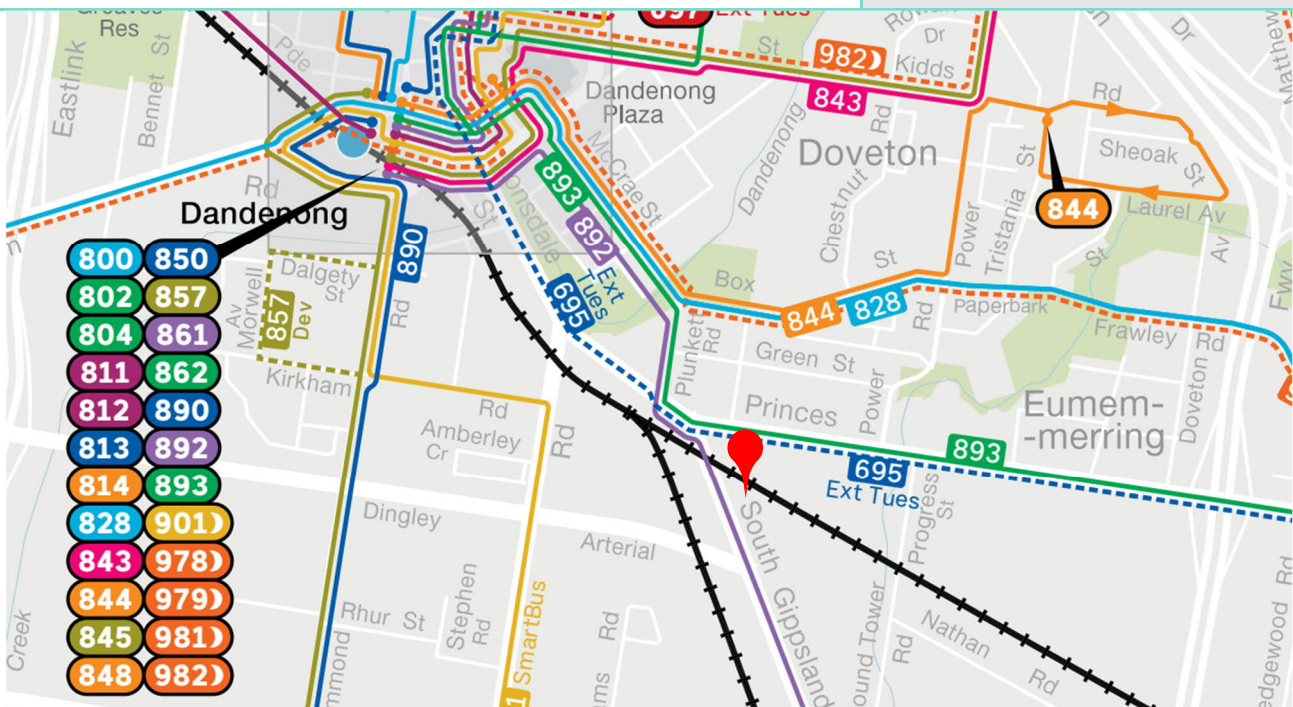


Figure 6: PTV Local Area Map indicating the public transport options surrounding the site (marked by the red marker. Source: ptv.vic.gov.au)

2.8 Urban Ecology

Design Requirements

Responsibility & Implementation

Project Stage

Communal Spaces (BESS Urban Ecology 1.1)

A total of 260m² of outdoor areas is provided to offices.

Additional 450m² common area will be provided for warehouse workers.

Architect

Design Development

Vegetation (BESS Urban Ecology 2.1, 2.3)

9.8% of the site (12,000m²) is covered with vegetation across the development. It is recommended that several indigenous species be included in the landscaping of the site. This will help maintain/enhance local biodiversity and encourage native birds to visit the space.

Green walls created through the use of climbers on frames will be utilised throughout as appropriate for different areas of the development.

Architect / Landscape Architect

Design Development

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Design Requirements	Responsibility & Implementation	Project Stage
Refrigerant Ozone Depleting Potential		
All HVAC refrigerants used in the development will be selected to have an Ozone Depletion Potential (ODP) of zero.	Mechanical Engineer	Construction Documentation
Insulation Ozone Depleting Potential		
All thermal insulation used in the development will not contain any ozone-depleting substances and will not use any in its manufacturing.	Architect	Construction Documentation
Light Pollution		
No external luminaire on the project will have an Upward light Output Ratio (ULOR) exceeding 5%, relative to its mounted orientation. External lighting will be designed to avoid light spill off the site or into the night sky.	Architect/ Electrical Engineer	Schematic Design
Urban Heat Island Effect Reduction		
The development will adopt multiple initiatives to reduce the impact of urban heat island effect on the site. These initiatives include areas of landscaping, light-coloured surfaces, and retention of existing canopy trees near proposed parking areas, will help provide cooling. Proposed metal roof sheeting is Zinalume which reduces the solar heat gain when compared to darker roofing options. Retention of canopy trees and planting of additional canopy trees to shade car park areas would further lower the urban heat island effect for the development.	Architect	Design Development

3. Conclusion

As set out in this SMP the proposed warehouses and offices at 7 Princes Hwy, Dandenong South will meet best practice requirements through the initiatives outlined in this report including the use of energy efficient systems, rainwater tanks for rainwater re-use, solar PV system and the use of low to zero VOC content materials, as well as reduced environmental impacts during the construction stage.

The initiatives that have been included within this SMP all have a proven track record of serving their individual purpose and can be easily maintained with any failures obvious to the occupants of the development. This helps to ensure the ongoing sustainability of the development, as the systems installed in the beginning are maintained for purpose throughout the life of the buildings.

The implementation of this SMP requires a clear process that will include:

- Full integration with architectural and building services plans and specifications;
- Endorsement of the SMP with planning drawings; and
- SMP initiatives to be included in plans and specifications for building approval.

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Appendix 1 – BESS Assessment

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BESS Report

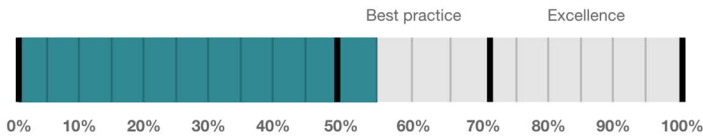
Built Environment Sustainability Scorecard



This BESS report outlines the sustainable design commitments of the proposed development at 7 Princes Hwy Dandenong South Victoria 3175. The BESS report and accompanying documents and evidence are submitted in response to the requirement for a Sustainable Design Assessment or Sustainability Management Plan at Greater Dandenong City Council.

Note that where a Sustainability Management Plan is required, the BESS report must be accompanied by a report that further demonstrates the development's potential to achieve the relevant environmental performance outcomes and documents the means by which the performance outcomes can be achieved.

Your BESS Score



58%

Project details

Address 7 Princes Hwy Dandenong South Victoria 3175
Project no C2870EC1-R4
BESS Version BESS-7

Site type Non-residential development
Account james@sdconsultants.com.au
Application no.
Site area 122,327.00 m²
Building floor area 67,120.00 m²
Date 05 June 2024
Software version 1.8.1-B.407



Performance by category

Category	Weight	Score Pass	Legend
Management	5%	40% -	● Your development (teal) ● Maximum available (grey)
Water	9%	71% ✓	
Energy	28%	66% ✓	
Stormwater	14%	100% ✓	
IEQ	17%	53% ✓	
Transport	9%	62% -	
Waste	6%	33% -	
Urban Ecology	6%	37% -	
Innovation	9%	0% -	

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Buildings

Name	Height	Footprint	% of total footprint
Warehouse 3A	2	20,318 m ²	28%
Warehouse 3B	2	7,587 m ²	10%
Warehouse 3C	2	6,018 m ²	8%
Warehouse 4	2	15,844 m ²	21%
Warehouse 5	2	14,246 m ²	19%
Warehouse 1A	2	2,194 m ²	3%
Warehouse 1B	2	3,871 m ²	5%
Warehouse 2	2	2,039 m ²	2%

Dwellings & Non Res Spaces

Non-Res Spaces

Name	Quantity	Area	Building	% of total area
Office				
Office 1A	1	770 m ²	Warehouse 1A	1%
Office 5	1	890 m ²	Warehouse 5	1%
Office 4	1	860 m ²	Warehouse 4	1%
Office 3A	1	890 m ²	Warehouse 3A	1%
Office 2	1	230 m ²	Warehouse 2	< 1%
Office 1B	1	260 m ²	Warehouse 1B	< 1%
Office 3C	1	490 m ²	Warehouse 3C	< 1%
Office 3B	1	490 m ²	Warehouse 3B	< 1%
Total	8	4,880 m²	7%	
Unconditioned Warehouse/factory				
Warehouse 3A	1	16,890 m ²	Warehouse 3A	25%
Warehouse 4	1	14,860 m ²	Warehouse 4	22%
Warehouse 5	1	13,040 m ²	Warehouse 5	19%
Warehouse 3B	1	6,390 m ²	Warehouse 3B	9%
Warehouse 3C	1	5,140 m ²	Warehouse 3C	7%
Warehouse 1B	1	3,270 m ²	Warehouse 1B	4%
Warehouse 2	1	1,320 m ²	Warehouse 2	1%
Warehouse 1A	1	1,330 m ²	Warehouse 1A	1%
Total	8	62,240 m²	92%	

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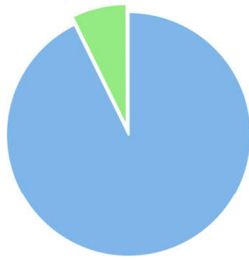
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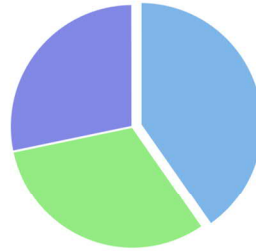
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Building Type composition



● Unconditioned Warehouse/factory ● Office

Building composition



● Warehouse 3A ● Warehouse 4 ● Warehouse 5

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Supporting information

Floorplans & elevation notes

Credit	Requirement	Response	Status
Management 3.2	Annotation: Individual utility meters to be provided to all individual commercial tenancies	To be printed Ensure that electrical documentation clearly shows individual utility meters to each tenancy.	✓
Management 3.3	Annotation: Sub-meters to be provided to all major common area services (list each)	To be printed Ensure that electrical documentation clearly shows common areas with separate utility meters.	✓
Water 3.1	Annotation: Water efficient garden details	To be printed Landscape designer to ensure that landscape documentation includes reference to a water efficient garden, with suitable indigenous species selected. If Landscape Designer not yet engaged, architectural documentation to show.	✓
Energy 4.2	Location and size of solar photovoltaic system	To be printed Solar panels to be shown on the roof plan.	✓
Stormwater 1.1	Location of any stormwater management systems (rainwater tanks, raingardens, buffer strips)	To be printed Rainwater tanks are shown on Architectural documentation.	✓
Transport 1.4	Location of non-residential bicycle parking spaces	To be printed Bicycle parking to be shown for each tenancy.	✓
Transport 1.6	Location of showers, change rooms and lockers as nominated	To be printed EoT to be shown in office plans	✓
Transport 2.1	Location of electric vehicle charging infrastructure	To be printed EV spaces marked on site plan	✓
Waste 2.2	Location of recycling facilities	To be printed Ensure that the bin areas clearly show recycling and general waste facilities.	✓

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Credit	Requirement	Response	Status
Urban Ecology 1.1	Location and size of communal spaces	To be printed Outdoor areas are shown on the site plan	✓
Urban Ecology 2.1	Location and size of vegetated areas	To be printed Vegetated areas shown on site plan.	✓
Urban Ecology 2.3	Location and size of green facade	To be printed To be documented by landscape designer.	✓

Supporting evidence

Credit	Requirement	Response	Status
Energy 1.1	Energy Report showing calculations of reference case and proposed buildings	To be printed NCC Section J Assessment During the detailed design stage of the project, a NCC 2019 Section J assessment will be conducted to demonstrate how the proposed building fabric complies with the relevant performance provisions.	✓
Energy 3.7	Average lighting power density and lighting type(s) to be used	To be printed Electrical Documentation Ensure the Electrical documentation shows IPD and lighting types.	✓
Energy 4.2	Specifications of the solar photovoltaic system(s)	To be printed Electrical documentation Solar PV specifications (size, orientation, inclination) to be detailed within electrical documentation.	✓
Stormwater 1.1	STORM report or MUSIC model	To be printed N/A The developer is currently liaising with Melbourne Water given the direct connection to the Eumemmerring Creek, which is a Melbourne Water asset. A civil/stormwater engineer will be engaged by the developer to ensure effective treatment solutions are applied to the development. It is noted that the redevelopment will not reduce the stormwater quality leaving the site.	✓
IEQ 1.4	A short report detailing assumptions used and results achieved.	To be printed Daylight Daylight modelling will be completed for the proposed design.	✓

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Credit summary

Management Overall contribution 4.5%

		40%
1.1 Pre-Application Meeting		0%
2.3 Thermal Performance Modelling - Non-Residential		0%
3.2 Metering - Non-Residential		100%
3.3 Metering - Common Areas		100%
4.1 Building Users Guide		100%

Water Overall contribution 9.0%

		Minimum required 50%	71%	✔ Pass
1.1 Potable Water Use Reduction			60%	
3.1 Water Efficient Landscaping			100%	
4.1 Building Systems Water Use Reduction			100%	

Energy Overall contribution 27.5%

		Minimum required 50%	66%	✔ 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%	
2.6 Electrification			0%	⊘ Disabled
Credit is available when project is declared to have no gas connection.				
3.1 Carpark Ventilation			N/A	⚡ Scoped Out
Carpark not enclosed				
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.				

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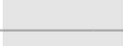

Stormwater Overall contribution 13.5%

	Minimum required 100%	100%	✓ Pass
1.1 Stormwater Treatment		100%	





IEQ Overall contribution 16.5%

	Minimum required 50%	53%	✓ Pass
1.4 Daylight Access - Non-Residential		85%	✓ Achieved
2.3 Ventilation - Non-Residential		48%	✓ 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%

	62%		
1.4 Bicycle Parking - Non-Residential		100%	
1.5 Bicycle Parking - Non-Residential Visitor		0%	
1.6 End of Trip Facilities - Non-Residential		100%	
2.1 Electric Vehicle Infrastructure		100%	
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		25%	
2.2 Green Roofs		0%	
2.3 Green Walls and Facades		100%	
3.2 Food Production - Non-Residential		0%	

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Innovation Overall contribution 9.0%

		0%
1.1 Innovation		0%

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Credit breakdown

Management Overall contribution 2%

1.1 Pre-Application Meeting		0%
Score Contribution	This credit contributes 41.0% towards the category score.	
Criteria	Has an ESD professional been engaged to provide sustainability advice from schematic design to construction? AND Has the ESD professional been involved in a pre-application meeting with Council?	
Question	Criteria Achieved ?	
Project	No	
2.3 Thermal Performance Modelling - Non-Residential		0%
Score Contribution	This credit contributes 18.1% towards the category score.	
Criteria	Has a preliminary facade assessment been undertaken in accordance with NCC2019 Section J1.5?	
Question	Criteria Achieved ?	
Office	No	
Criteria	Has preliminary modelling been undertaken in accordance with either NCC2019 Section J (Energy Efficiency), NABERS or Green Star?	
Question	Criteria Achieved ?	
Office	No	
3.2 Metering - Non-Residential		100%
Score Contribution	This credit contributes 13.7% towards the category score.	
Criteria	Have utility meters been provided for all individual commercial tenants?	
Question	Criteria Achieved ?	
Office	Yes	
Unconditioned Warehouse/factory	Yes	
3.3 Metering - Common Areas		100%
Score Contribution	This credit contributes 13.7% towards the category score.	
Criteria	Have all major common area services been separately submetered?	
Question	Criteria Achieved ?	
Office	Yes	
Unconditioned Warehouse/factory	Yes	
4.1 Building Users Guide		100%
Score Contribution	This credit contributes 13.7% towards the category score.	
Criteria	Will a building users guide be produced and issued to occupants?	
Question	Criteria Achieved ?	
Project	Yes	

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Water Overall contribution 6% 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	
Showerhead: All	4 Star WELS (>= 4.5 but <= 6.0)
Bath: All	Scope out
Kitchen Taps: All	>= 6 Star WELS rating
Bathroom Taps: All	>= 6 Star WELS rating
Dishwashers: All	Scope out
WC: All	>= 4 Star WELS rating
Urinals: All	>= 6 Star WELS rating
Washing Machine Water Efficiency: All	Scope out

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Which non-potable water source is the dwelling/space connected to?:

RWT
3A Office
3A

Warehouse
3A

RWT
3B Office
3B

Warehouse
3B

RWT
3C Office
3C

Warehouse
3C

RWT
4 Office
4

Warehouse
4

RWT
5 Office
5

Warehouse
5

RWT1A
Office
1A

Warehouse
1A

RWT1B
Office
1B

Warehouse
1B

RWT2
Office

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Non-potable water source connected to Toilets: All	Yes
Non-potable water source connected to Laundry (washing machine): All	No
Non-potable water source connected to Hot Water System: All	No
Rainwater Tanks	
What is the total roof area connected to the rainwater tank?:	
RWT 3A	1,000 m ²
RWT 3B	1,000 m ²
RWT 3C	1,000 m ²
RWT1A	1,000 m ²
RWT 4	1,000 m ²
RWT 5	1,000 m ²
RWT1B	1,000 m ²
RWT2	1,000 m ²
Tank Size:	
RWT 3A	10,000 Litres
RWT 3B	10,000 Litres
RWT 3C	10,000 Litres
RWT1A	10,000 Litres
RWT 4	10,000 Litres
RWT 5	10,000 Litres
RWT1B	10,000 Litres
RWT2	10,000 Litres
Irrigation area connected to tank:	
RWT 3A	1,000 m ²
RWT 3B	1,000 m ²
RWT 3C	1,000 m ²
RWT1A	1,000 m ²
RWT 4	1,000 m ²
RWT 5	1,000 m ²
RWT1B	1,000 m ²
RWT2	1,000 m ²
Is connected irrigation area a water efficient garden?:	
RWT 3A	No
RWT 3B	No
RWT 3C	No
RWT1A	No
RWT 4	No
RWT 5	No
RWT1B	No
RWT2	No

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Other external water demand connected to tank?:	
RWT 3A	-
RWT 3B	-
RWT 3C	-
RWT1A	-
RWT 4	-
RWT 5	-
RWT1B	-
RWT2	-
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	42026 kL
Output	Proposed (excluding rainwater and recycled water use)
Project	27200 kL
Output	Proposed (including rainwater and recycled water use)
Project	23322 kL
Output	% Reduction in Potable Water Consumption
Project	44 %
Output	% of connected demand met by rainwater
Project	33 %
Output	How often does the tank overflow?
Project	Very Often
Output	Opportunity for additional rainwater connection
Project	4687 kL
3.1 Water Efficient Landscaping	100%
Score Contribution	This credit contributes 14.3% towards the category score.
Criteria	Will water efficient landscaping be installed?
Annotation	Not all landscaping will be irrigated. Plenty of landscaping will be indigenous and can survive without irrigation. Any irrigated areas will be connected to RWTs though
Question	Criteria Achieved ?
Project	Yes
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

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Energy Overall contribution 18% 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
Use the BESS Deem to Satisfy (DtS) method for Energy Unconditioned Spaces?:	-
Are you installing a cogeneration or trigeneration system?:	No
Non-Residential Building Energy Profiles	
Heating - Gas - Reference fabric and services:	
Warehouse 3A	0.0 MJ
Warehouse 3B	
Warehouse 3C	
Warehouse 4	
Warehouse 5	
Warehouse 1A	-
Warehouse 1B	
Warehouse 2	
Heating - Gas - Proposed fabric and Reference services:	
Warehouse 3A	0.0 MJ
Warehouse 3B	
Warehouse 3C	
Warehouse 4	
Warehouse 5	
Warehouse 1A	-
Warehouse 1B	
Warehouse 2	

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Heating	
-	
Gas	
-	
Proposed fabric and services:	
0.0	
M Warehouse 3A	
Warehouse 3B	
Warehouse 3C	
Warehouse 4	
Warehouse 5	
-	
Warehouse 1A	
Warehouse 1B	
Warehouse 2	

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Hot Water	-
Gas	-
Baseline:	0.0
M Warehouse 3A	
Warehouse 3B	
Warehouse 3C	
Warehouse 4	
Warehouse 5	
Warehouse 1A	
Warehouse 1B	
Warehouse 2	
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Hot Water - Gas - Proposed:	
Warehouse 3A	0.0 MJ
Warehouse 3B	
Warehouse 3C	
Warehouse 4	
Warehouse 5	
Warehouse 1A	-
Warehouse 1B	
Warehouse 2	
Solar Photovoltaic systems	

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System Size (lesser of inverter and panel capacity):	
PV 3A	90.0 kW peak
PV 4	90.0 kW peak
PV 5	90.0 kW peak
PV 3B	40.0 kW peak
PV 3C	40.0 kW peak
3A Office	10.0 kW peak
4 Office	10.0 kW peak
5 Office	10.0 kW peak
3B office	10.0 kW peak
3C office	10.0 kW peak
1A Office	10.0 kW peak
1B office	10.0 kW peak
2 Office	10.0 kW peak
1A WH	15.0 kW peak
1B WH	15.0 kW peak
2 WH	15.0 kW peak
Orientation (which way is the system facing)?:	
PV 3A	North
PV 4	North
PV 5	North
PV 3B	North
PV 3C	North
3A Office	North
4 Office	North
5 Office	North
3B office	North
3C office	North
1A Office	North
1B office	North
2 Office	North
1A WH	North
1B WH	North
2 WH	North

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Inclination (angle from horizontal):	
PV 3A	3.0 Angle (degrees)
PV 4	3.0 Angle (degrees)
PV 5	3.0 Angle (degrees)
PV 3B	3.0 Angle (degrees)
PV 3C	3.0 Angle (degrees)
3A Office	3.0 Angle (degrees)
4 Office	3.0 Angle (degrees)
5 Office	3.0 Angle (degrees)
3B office	3.0 Angle (degrees)
3C office	3.0 Angle (degrees)
1A Office	3.0 Angle (degrees)
1B office	3.0 Angle (degrees)
2 Office	3.0 Angle (degrees)
1A WH	3.0 Angle (degrees)
1B WH	3.0 Angle (degrees)
2 WH	3.0 Angle (degrees)
Which Building Class does this apply to?:	
PV 3A	Unconditioned Warehouse/factory
PV 4	Unconditioned Warehouse/factory
PV 5	Unconditioned Warehouse/factory
PV 3B	Unconditioned Warehouse/factory
PV 3C	Unconditioned Warehouse/factory
3A Office	Office
4 Office	Office
5 Office	Office
3B office	Office
3C office	Office
1A Office	Office
1B office	Office
2 Office	Office
1A WH	Unconditioned Warehouse/factory
1B WH	Unconditioned Warehouse/factory
2 WH	Unconditioned Warehouse/factory
1.1 Thermal Performance Rating - Non-Residential	37%
Score Contribution	This credit contributes 27.9% 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 10.5% towards the category score.
Criteria	What is the % reduction in annual greenhouse gas emissions against the benchmark?

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2.2 Peak Demand	100%
Score Contribution	This credit contributes 3.5% 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 10.5% 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 10.5% towards the category score.
Criteria	What is the % reduction in annual gas consumption against the benchmark?
2.6 Electrification	0%  Disabled
This credit is disabled	Credit is available when project is declared to have no gas connection.
3.1 Carpark Ventilation	N/A  Scoped Out
This credit was scoped out	Carpark not enclosed
3.2 Hot Water	100%
Score Contribution	This credit contributes 5.3% 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 10.5% 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 ?
Office	Yes
Unconditioned Warehouse/factory	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 5.3% 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
Office	91,839 kWh
Unconditioned Warehouse/factory	453,455 kWh
Output	% of Building's Energy
Office	60 %
Unconditioned Warehouse/factory	145 %

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4.4 Renewable Energy Systems - Other	0%	<input type="checkbox"/> 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

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IEQ Overall contribution 9% Minimum required 50%

1.4 Daylight Access - Non-Residential		85%	✓ 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?		
Office	33 %		
Unconditioned Warehouse/factory	90 %		
2.3 Ventilation - Non-Residential		48%	✓ 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?		
Office	0 %		
Unconditioned Warehouse/factory	100 %		
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?		
Office	50 %		
Unconditioned Warehouse/factory	0 %		
Criteria	What CO2 concentrations are the ventilation systems designed to achieve, to monitor and to maintain?		
Question	Value		
Office	-		
Unconditioned Warehouse/factory	-		
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?		
Office	0 %		
Unconditioned Warehouse/factory	0 %		
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?		
Office	0 %		
Unconditioned Warehouse/factory	0 %		
4.1 Air Quality - Non-Residential		100%	
Score Contribution	This credit contributes 5.9% towards the category score.		

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Criteria	Do all paints, sealants and adhesives meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Unconditioned Warehouse/factory	Yes
Criteria	Does all carpet meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Unconditioned Warehouse/factory	No carpet
Criteria	Does all engineered wood meet the maximum total indoor pollutant emission limits?
Question	Criteria Achieved ?
Office	Yes
Unconditioned Warehouse/factory	Yes

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Transport Overall contribution 6%

1.4 Bicycle Parking - Non-Residential		100%
Score Contribution	This credit contributes 25.0% 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 ?	
Office	Yes	
Unconditioned Warehouse/factory	Yes	
Question	Bicycle Spaces Provided ?	
Office	8	
Unconditioned Warehouse/factory	8	
1.5 Bicycle Parking - Non-Residential Visitor		0%
Score Contribution	This credit contributes 12.5% 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 ?	
Office	No	
Unconditioned Warehouse/factory	No	
Question	Bicycle Spaces Provided ?	
Office	0	
Unconditioned Warehouse/factory	0	
1.6 End of Trip Facilities - Non-Residential		100%
Score Contribution	This credit contributes 12.5% towards the category score.	
Criteria	Where adequate bicycle parking has been provided. Is there also: * 1 shower for the first 5 employee bicycle spaces plus 1 to each 10 employee bicycles spaces thereafter, * changing facilities adjacent to showers, and * one secure locker per employee bicycle space in the vicinity of the changing / shower facilities?	
Question	Number of showers provided ?	
Office	8	
Unconditioned Warehouse/factory	8	
Question	Number of lockers provided ?	
Office	8	
Unconditioned Warehouse/factory	8	
Output	Min Showers Required	
Office	1	
Unconditioned Warehouse/factory	1	
Output	Min Lockers Required	
Office	8	
Unconditioned Warehouse/factory	8	

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2.1 Electric Vehicle Infrastructure		100%
Score Contribution	This credit contributes 25.0% towards the category score.	
Criteria	Are facilities provided for the charging of electric vehicles?	
Question	Criteria Achieved ?	
Project	Yes	
2.2 Car Share Scheme		0%
Score Contribution	This credit contributes 12.5% 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 12.5% 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	

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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 : * 1m ² for each of the first 50 occupants * Additional 0.5m ² for each occupant between 51 and 250 * Additional 0.25m ² for each occupant above 251?
Question	Common space provided
Office	260 m ²
Unconditioned Warehouse/factory	450 m ²
Output	Minimum Common Space Required
Office	235 m ²
Unconditioned Warehouse/factory	448 m ²
2.1 Vegetation	25%
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	9 %
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	100%
Score Contribution	This credit contributes 12.5% towards the category score.
Criteria	Does the development incorporate a green wall or green façade?
Annotation	Green walls created through the use of climbers on frames will be utilised throughout as appropriate for different areas of the development.
Question	Criteria Achieved ?
Project	Yes
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
Office	0.0 m ²
Unconditioned Warehouse/factory	0.0 m ²
Output	Min Food Production Area
Office	98 m ²
Unconditioned Warehouse/factory	312 m ²

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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)?

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Appendix 2 – WSUD Report

Objectives

The quality and quantity of stormwater leaving a site can have a significant impact on the surrounding infrastructure and waterways. Impervious surfaces move water quickly and efficiently out of built-up areas straight into stormwater infrastructure, which in turn quickly moves the untreated water into natural watercourses. This process does not treat the stormwater and as the water flows into natural water courses, it causes erosion and pollution of those waterways with the rubbish, sediments, pathogens, and other pollutants that run off the impervious surfaces into the stormwater drains.

New developments in the City of Greater Dandenong must comply with *Clause 53.18* and the best practice performance targets for suspended solids, total phosphorous and total nitrogen, as set out in the Urban Stormwater Best Practice Environmental Management Guidelines, Victoria Stormwater Committee 1999. Currently, these water quality performance targets require:

- Suspended Solids - 80% retention of typical urban annual load.
- Total Nitrogen - 45% retention of typical urban annual load.
- Total Phosphorus - 45% retention of typical urban annual load.
- Litter - 70% reduction of typical urban annual load.

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New developments must also incorporate treatment measures that improve the quality of water and reduce flow of water discharged into waterways (such as collection and use of rainwater/stormwater on site) and encourage the use of measures to prevent litter being carried off-site in stormwater flows.

The subject site is located at 7 Princes Highway, Dandenong South. The developer is currently liaising with Melbourne Water given the direct connection to the Eumemmerring Creek, which is a Melbourne Water asset.

A civil/stormwater engineer will be engaged by the developer to ensure effective treatment solutions are applied to the development.

It is noted that the redevelopment will not reduce the stormwater quality leaving the site.

Site Characteristics

For the purposes of the stormwater assessment, the development has been delineated into the basic surface types listed below and highlighted in marked-up plans following:

- Total development site area: 122,327m²
- Impermeable area (uncoloured): 102,327m²
- Roof collection area for rainwater tanks (blue): 8,000m²
- Permeable landscape area (green): 12,000m²

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Stormwater Management Initiatives

Stormwater treatment initiatives will need to be implemented. The following section presents the different surfaces that have been identified for treatment, and the required treatment. The initiatives to manage stormwater flows for the building area will underpin the overall performance of the building and its ability to meet stormwater management objectives.

Table 2: List of areas and their stormwater treatment measures.

Surfaces	Topographic Area (m ²)	Required Treatment
Effective Roof Catchment Area	8,000m ²	Runoff from the total catchment area of 8,000m ² will be diverted to rainwater tanks with a total effective storage capacity of 80,000L (each warehouse will have a 10,000L rainwater tank). Each tank will be connected to a minimum 1,000m ² of roof catchment area. The stored water will be used for toilet flushing and landscape irrigation. Overflow from the tank(s) will be diverted to the Legal Point of Discharge (LPD) on site.
Permeable Landscaping Area	12,000m ²	The landscape area is assumed to be permeable, with no additional treatment required.
Remaining Impervious Area	102,327m ²	All remaining areas will be diverted to the Legal Point of Discharge (LPD) on site.

Stormwater Runoff Treatment during the Construction Stage

Treatment – Various

Stormwater management in the construction stage will include measures which will be put in place to minimise the likelihood of contaminating stormwater discharge from the site as well as reduce the velocity of the flows generated from the building as it is being constructed. This will mean ensuring buffer strips are in place, and the site will be kept clean from any loose rubbish. More information is available from "Keeping Our Stormwater Clean – A Builder's Guide" by Melbourne Water³. The diagram below is an illustration of the various objectives which assist in minimising the impacts of stormwater runoff typical during the construction phase. Typical pollutants that are generated from a construction site during a rainfall event include:

- Dust
- Silt
- Mud
- Gravel
- Stockpiled materials
- Spills/oils
- Debris/litter

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³ For copies please contact Melbourne Water on 131 722.

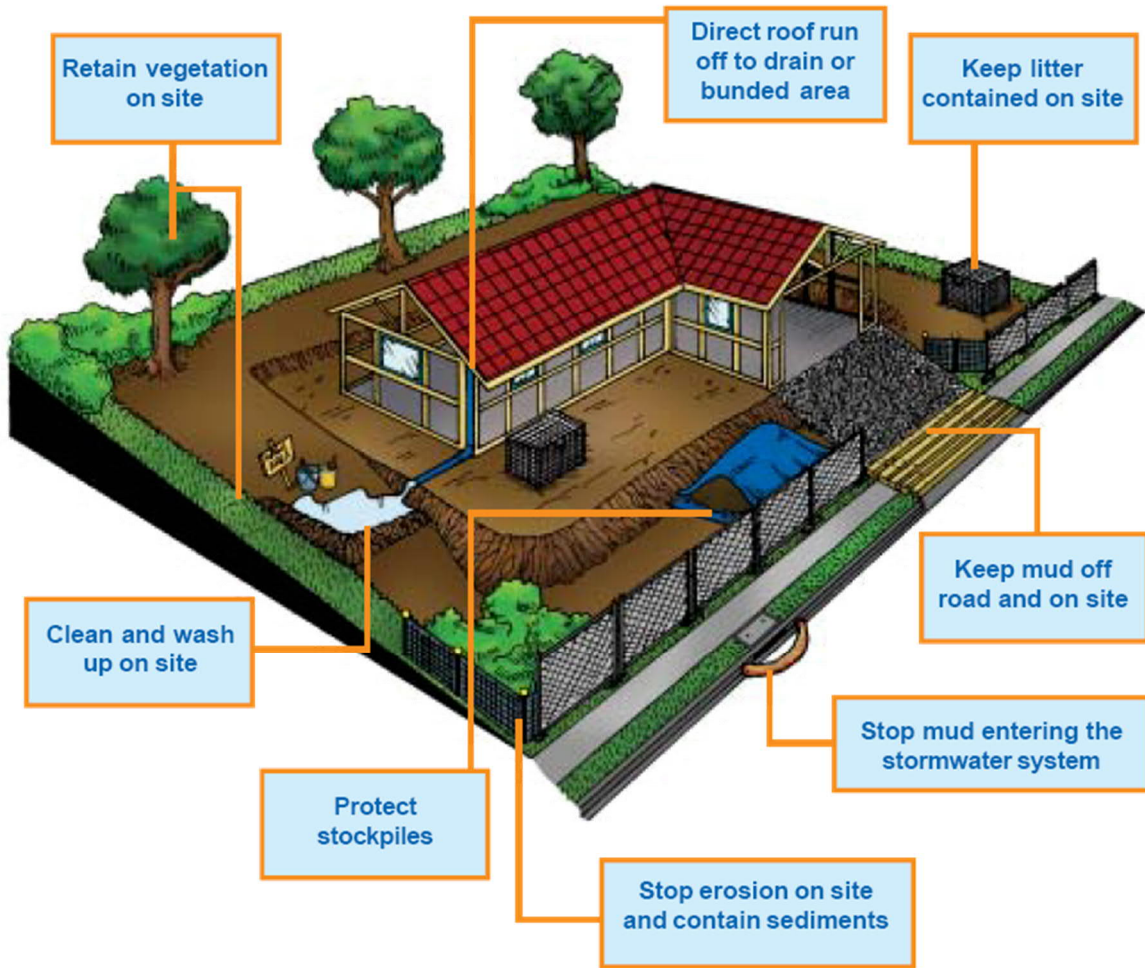
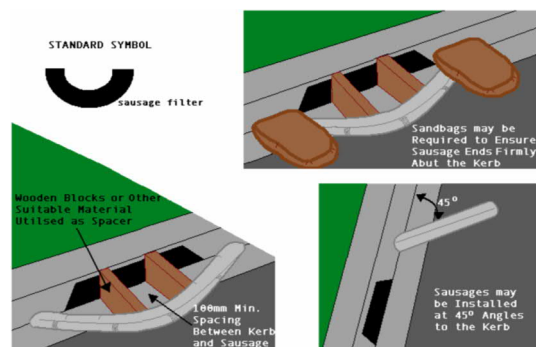


Figure 8: Stormwater will be effectively managed during construction phase according to the requirements listed in “Keeping Our Stormwater Clean – A Builder’s Guide

To reduce the impacts and minimise the generation of these pollutants the following measures are proposed. The symbols embedded within each image are typically used for Construction Environmental Management Plans.

Gravel Sausage filters – to be placed at the entrance of pits/side stormwater inlets. These permeable sacks will filter the suspended soils and sediments and any other litter carried by the stormwater to prevent the pollutants entering the system.

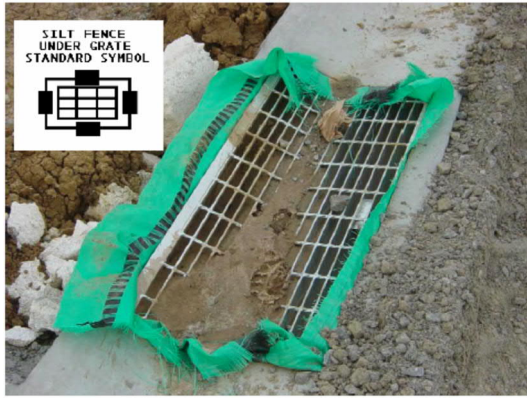


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Silt Fences Under Grates - Silt fence material may be placed under the grate of surface-entry inlets to prevent sediment from entering the stormwater system.

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Temporary Rumble Grids – these are designed to open the tread on tires and vibrate mud and dirt off the vehicle (in particular the chassis). This will heavily minimise the amount of soil/dirt deposited on local roads where it can be washed (by rainfall or other means) into the stormwater drains.



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Stormwater Runoff from Roof Catchment Areas

Treatment – Rainwater Tanks

Rainwater tanks are considered one of the most practical and effective mechanisms to reduce the quantity and velocity of stormwater leaving a site. Rainwater tanks will capture the stormwater that runs off the roof surfaces as per Figure 7 and store it for toilet/urinal flushing re-use throughout the redevelopment site, and for irrigation, effectively reducing the actual volume of water leaving the site. Instead of rainwater being considered as waste and a burden on the infrastructure, it is seen as a resource which has the double benefit of reducing demand on potable water supplies and as a stormwater mitigation initiative.

Stormwater System Maintenance

The proposed stormwater management devices will require regular maintenance and monitoring to ensure they function as designed. An operation maintenance manual will be prepared for the site. The following section outlines key maintenance tasks and recommended frequency. The property owner will be responsible for continuous implementation of stormwater management device maintenance.

Rainwater Tank Systems

The standard maintenance activities that typically take place as part of an ongoing maintenance schedule for the rainwater tank system are as follows:

Rainwater tank system element	Frequency	Maintenance Task
Rainwater tanks – Minor service	Quarterly	<ul style="list-style-type: none"> • Check for any damage/compression • Check that supporting base is free of cracks and movement • Empty and clean first flush diverters • Remove and clean inlet and outlet/overflow strainers • Check correct operation of potable mains back up switch • Check that mesh covers have not deteriorated and intact • Check for mosquito infestation
Rainwater tanks – Major service	Every 2 years	<ul style="list-style-type: none"> • Clean tank to remove accumulated sludge
Pumps	Every 6 months	<ul style="list-style-type: none"> • Service water pump to prolong life
Roof and gutters	Every 6 months	<ul style="list-style-type: none"> • Clean out of leaves/debris

Disposal of Waste Materials

The accumulated pollutants found in the stormwater treatment systems must be handled and disposed of in a manner that is in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes.

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Appendix 3 – Green Star VOC and Formaldehyde Limits

Table 3: Maximum Volatile Organic Compound Levels for construction materials (Source: Green Building Council Australia – Green Star Buildings Submission Guidelines Version 1, 2021)

Product Type/Sub Category	Max TVOC Content (g/L of ready-to-use-product)
Paints, Adhesives and Sealants	
General purpose adhesives and sealants	50
Interior wall and ceiling paint, all sheen levels	16
Trim, varnishes and wood stains	75
Primers, sealers and prep coats	65
One and two pack performance coatings for floors	140
Acoustic sealants, architectural sealant, waterproofing membranes and sealant, fire retardant sealants and adhesives	250
Structural glazing adhesive, wood flooring and laminate adhesives and sealants	100
Carpets	
Total VOC limit	0.5 mg/m ² per hour
4-PC (4-Phenylcyclohexene)	0.05mg/m ² per hour
ISO 16000 / EN 13419 - TVOC at three days	0.5 mg/m ² per hour
ISO 10580 / ISO/TC 219 (Document N238) - TVOC at 24 hours	0.5 mg/m ² per hour

Table 4: Maximum Formaldehyde levels for processed wood products. (Source: Green Building Council Australia – Green Star Buildings Submission Guidelines Version 1, 2021)

Formaldehyde emission limit values for different testing methods	
Test Method	Emission Limit/ Unit of Measurement
AS/NZS 2269:2004, testing procedure AS/NZS 2098.11:2005 method 10 for Plywood	≤1mg/ 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	≤1mg/ L
AS/NZS 4357.4 - Laminated Veneer Lumber (LVL)	≤1mg/ L
Japanese Agricultural Standard MAFF Notification No.701 Appendix Clause 3 (11) - LVL	≤1mg/ L
JIS A 5908:2003- Particle Board and Plywood, with use of testing procedure JIS A 1460	≤1mg/ L
JIS A 5905:2003 - MDF, with use of testing procedure JIS A 1460	≤1mg/ L
JIS A1901 (not applicable to Plywood, applicable to high pressure laminates and compact laminates)	≤0.1 mg/m ² hr
ASTM D5116 (applicable to high pressure laminates and compact laminates)	≤0.1 mg/m ² hr
ISO 16000 part 9, 10 and 11 (also known as EN 13419), applicable to high pressure laminates and compact laminates	≤0.1 mg/m ² hr (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)	≤0.12mg/m ³
EN 717-2 (also known as DIN EN 717-2)	≤3.5mg/m ² hr

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