Wyndham City Council

**Sustainable Design Assessment in the Planning Process (SDAPP)**

**Sustainable Management Plan (SMP)**

Report Template

January 2018

Table of Contents

[About this document 3](#_Toc471818863)

[1.0 Indoor Environment Quality 6](#_Toc471818865)

[2.0 Energy Efficiency 7](#_Toc471818866)

[3.0 Water Resources 10](#_Toc471818867)

[4.0 Stormwater Treatment 11](#_Toc471818868)

[5.0 Building Materials 12](#_Toc471818869)

[6.0 Transport 13](#_Toc471818870)

[7.0 Waste Management 14](#_Toc471818871)

[8.0 Urban Ecology 15](#_Toc471818872)

[9.0 Innovation and ESD Excellence 16](#_Toc471818873)

[10.0 Construction and Building Management 16](#_Toc471818874)

[11.0 Implementation and Commissioning 17](#_Toc471818875)

[APPENDIX A – BESS Report 19](#_Toc471818876)

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Please note that this document is a template only and submission of a SDA or SMP report in no way constitutes council issuing a planning permit.

# About this document

*This document provides* ***large-scale******applicants*** *seeking a planning permit with an SMP Template Report that will help them address the ESD requirements within* ***Wyndham City Council.*** *Large-scale applicants participating in the* ***Sustainable Design Assessment in the Planning Process (SDAPP)*** *program within Wyndham City Council should submit a* ***Sustainable Management Plan (SMP)*** *that responds to each of the following* ***10 Key Sustainability Criteria****:*

|  |  |
| --- | --- |
| *Indoor Environment Quality*  *Energy Efficiency*  *Water Efficiency*  *Stormwater Management*  *Building Materials* | *Transport*  *Waste Management*  *Urban Ecology*  *Innovation*  *Construction and Building Management* |

# How to use this document

*This document is not designed to set a minimum standard or to provide a definitive list of environmentally sustainable design (ESD) initiatives to be included in a development. ESD should be integrated into the design of a new building from the earliest stage. The best ESD response will depend on many site-specific factors.*

*The blue text is intended as a guide only and should be deleted prior to submission.*

*The red text highlights sections of the template where the applicant should provide a response.*

# Introduction

This Sustainable Management Plan has been prepared for the proposed development at

**Enter Here – KEY DETAILS**

Wyndham City Council uses the SDAPP Framework and Program, under which this proposal is classified as ‘large-scale’ development. SDAPP refers to:

*“the consistent inclusion of key environmental performance considerations into the planning permit approvals process in order to achieve more sustainable outcomes for the long-term benefit of the wider community”.*

This report demonstrates how this development incorporates environmentally sustainable design.

Planning Reference

Planning Reference Number **Enter Here – PLNXX/XXXX**

Planning Zone **Enter Here – PLNXX/XXXX**

The Site

Address **Enter Here**

Development Type **Enter Here – RESIDENTIAL | NON-RESIDENTIAL | MIXED-USE**

Number of Storeys **Enter Here – STOREYS AND HEIGHT**

Cap Parking **Enter Here – LEVELS OF CAR PARKING**.

Number of Dwellings **Enter Here – NUMBER AND TYPE OF DWELLINGS**

Number of Non-Res Spaces **Enter Here – NON-RESIDENTIAL GFA | NUMBER OF SPACES**

Total Site Area **Enter Here – M2**

Total Gross Floor Area **Enter Here – M2**

GFA Non-Residential **Enter Here – M2**

GFA Residential **Enter Here – M2**

GFA Common **Enter Here – M2**

Condition Area (Res) **Enter Here – M2**.

|  |  |
| --- | --- |
| **Floor** | **Details** |
|  |  |
| **Basement** | **Enter Here** Car Parking Space  **Enter Here** Secure Bicycle Parking Space  **Enter Here** kL Rainwater Tank  **Enter Here** m2 Waste and Recycling Storage Area |
| **Ground floor** | **Enter Here** Retail Shops |
| **1st floor** | **Enter Here** Apartments |
| **2nd floor** | **Enter Here** Apartments |
| **3rd floor** | **Enter Here** Apartments |
| **Roof** | **Enter Here**  e.g. Roof Garden + 5kW Solar PV System |

|  |  |
| --- | --- |
| Built Environment Sustainability Scorecard (BESS) Results The development has been assessed using the BESS assessment tool ([www.bess.net.au](http://www.bess.net.au)).  A summary of the results is shown in the table below. For the full BESS Report please see at **Enter Here – APPEDNIX X** | **Enter Here – BESS Score** |

*Fill in the Summary of Results after completing an ESD assessment on your development using the BESS Tool.*

|  |  |  |  |
| --- | --- | --- | --- |
| **% of Total** | **Category** | **Score** | **Pass** |
| **Enter Here** | **Management** | **Enter Here** | *-* |
| **Enter Here** | **Water** | **Enter Here** | *-* |
| **Enter Here** | **Energy** | **Enter Here** | *-* |
| **Enter Here** | **Stormwater** | **Enter Here** | *-* |
| **Enter Here** | **IEQ** | **Enter Here** | *-* |
| **Enter Here** | **Transport** | **Enter Here** | *-* |
| **Enter Here** | **Waste** | **Enter Here** | *-* |
| **Enter Here** | **Urban Ecology** | **Enter Here** | *-* |
| **Enter Here** | **Innovation** | **Enter Here** | *-* |

# 1.0 Indoor Environment Quality

Indoor environment quality is about creating healthy living spaces for building occupants, including rooms that are designed for optimal daylight access, to promote natural ventilation and are comfortable with minimal need for mechanical heating and cooling. The use of low toxicity materials and finishes also supports a health indoor air quality as off-gassing of volatile organic compounds is minimised.

*Replace the actions highlighted in red text within the ‘Response – Strategies and Innovation’ column with commitments made by the applicant. For an example see the SMP Example Report on our website.*

### Actions to maximise indoor environment quality

|  |  |  |
| --- | --- | --- |
| **Actions** | **Potential Impact** | **Response - Strategies and Innovations** |
| **Maximise daylighting** | Access to daylight has physical and mental health benefit for occupants. Daylighting is particularly important for living spaces. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Maximise opportunities for natural ventilation** | Natural ventilation reduces demand for mechanical cooling and prevents build-up of indoor pollutants. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Thermal comfort** | Reduced demand for mechanical heating and cooling. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Low VOC materials** | Reduction in ‘off-gassing’ and associated health issues from products with high levels of VOCs. | **Enter Here**  **Enter Here**  **Enter Here** |

# 2.0 Energy Efficiency

Buildings contribute approximately 20% of global greenhouse gas emissions (Stern Review, 2006), and therefore represent a huge potential for energy and greenhouse gas emission reduction. The highest energy consumption usually comes from heating and cooling, therefore decisions that are made in the early design phase can lock in poor building performance and high energy costs for 50 years or more. Conversely, good design decisions can ensure that a building is future-proofed against rising energy prices.

*Replace the actions highlighted in red text within the ‘Response – Strategies and Innovation’ column with commitments made by the applicant. For an example see the SMP Example Report on our website.*

### Actions to maximise energy efficiency

| **Actions** | **Potential Impact** | **Response – Strategies and innovations** |
| --- | --- | --- |
| **Maximise thermal performance** | Seven star houses use on average 45% less heating and cooling compared with a 5 star house. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Minimise standby power consumption** | Standby power can account for up to 10% of a household’s energy consumption | **Enter Here**  **Enter Here**  **Enter Here** |
| **Use energy efficient heating & cooling systems** | Heating and cooling systems can account for up to 40% of a household’s energy use | **Enter Here**  **Enter Here**  **Enter Here** |
| **Use energy efficient hot water system** | Hot water can account for up to 25% of a household’s energy use. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Use energy efficient appliances** | While many appliances are supplier by the owner/occupier, some fixed appliances will be provided, including dishwashers and washing machines. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Natural clothes drying** | Mechanical clothes dryers are energy intensive – this impact can be eliminated by providing options for outdoor clothes drying. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Energy efficient lighting** | Common area lighting often runs 24/7, 365 days per year. This can add up to significant energy use for the building. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Green Roofs** | Green roof help to displace the urban heat island effect, which can increase localised temperatures by up to 7oC. Green roofs can also provide additional insulation to the building. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Building Management System** |  | **Enter Here**  **Enter Here**  **Enter Here** |

### On-site energy generation

| **Actions** | **Potential Impact** | **Strategies and innovations** |
| --- | --- | --- |
| **Photovoltaic panels** | Reduce emissions from common area lighting & services. Distributed systems reduce the need for upgraded grid infrastructure. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Solar water heating** | Hot water can account for up to 25% of a household’s energy use. | **Enter Here**  **Enter Here**  **Enter Here** |

## Sample FirstRate Assessments

A representative sample of 10 apartments was modelled using the FirstRate software. This included a range of apartment layouts and orientations and also the apartments likely to have the poorest thermal performance rating. This is a useful check that the development will meet the energy rating requirements of the Building Code of Australia (BCA). A minimum average of 6 stars (138 MJ/m2 in Tullamarine climate zone 60) is required to comply with the BCA (2011), with no apartment rating less than 5 stars.

FirstRate calculates the required energy to maintain the dwelling at a comfortable temperature, using the building fabric (floors, walls/windows, roof) information as its input, plus the relevant climate zone (in this case Tullamarine, climate zone 60).

*Enter the sample NatHERS ratings (if applicable) for the development in the table below. Make sure you attach copies of the sample NatHERS rating to the completed report.*

The following star ratings were achieved:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Dwelling** | **Star Rating** | **Conditioned Floor Area** | **Total Energy Use (MJ/m2)** | **Heating Energy Use (MJ/m2)** | **Cooling Energy Use (MJ/m2)** |
| **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** |
| **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** |
| **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** |
| **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** |
| **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** |
| **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** |
| **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** |
| **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** | **Enter Here** |
| **Average** | **-** | **-** | **-** | **-** | **-** |

Based on this sample, the development is likely to achieve an average 6.5 star rating. Note these ratings depend on the following assumptions:

* All gaps around windows, doors are to be sealed.
* All exhaust fans are to be self-closing
* Roof insulation R4.0 (additional R-value)
* External wall insulation R2.5 (additional R-value)
* Window systems – U-value = 4.95, SHGC = 0.7 (standard aluminium frame, 6mm air gap, double glazed units)

# 3.0 Water Resources

In order to conserve our precious water resources, our cities and our buildings need to carefully plan for water efficiency, and for water use that is ‘fit-for-purpose’. Potable water is treated to drinking water standard and this water quality level is not needed for every application.

## Water Efficiency

Water fittings and appliances are rated under the Water Efficiency Labelling and Standards (WELS) scheme. Choosing high WELS rated fittings and appliances (where specified) are a key way to reduce water consumption within a development. Landscaping with low water use species reduces outdoor water use while maintaining attractive outdoor communal spaces.

*Replace the actions highlighted in red text within the ‘Response – Strategies and Innovation’ column with commitments made by the applicant. For an example see the SMP Example Report on our website.*

### Actions to maximise water efficiency

|  |  |  |
| --- | --- | --- |
| **Actions** | **Potential Impact** | **Strategies and innovations** |
| **Water efficient fittings** | High efficiency fittings can reduce water use by 50% or more. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Water efficient appliances** | High efficiency appliances can reduce water use by 50% or more. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Re-use fire system test water** | Fire systems need to be tested regularly – this water can be re-used rather than wasted. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Water efficient landscaping & gardens** | No potable water used for garden irrigation means that potable water is not wasted but is fit for purpose | **Enter Here**  **Enter Here**  **Enter Here** |

*Enter your development’s actions and commitments in the box highlighted in red text. For an example see the SMP Example Report on our website.*

## Rainwater Harvesting

**Enter Here**

**Enter Here**

**Enter Here**

# 4.0 Stormwater

Stormwater quality is a significant issue in urban areas as the high levels of impervious surfaces transport stormwater quickly into the drainage system along with sediment and pollutants from the urban environment. Strategies for improving stormwater include reducing volume entering the stormwater system, either by on-site re-use or by maximising on-site penetration, and also providing treatment measures so that the quality of any stormwater leaving the site is improved.

This development achieves a score of **Enter Here** using Melbourne Water’s STORM tool.

*Replace the actions highlighted in red text within the ‘Response – Strategies and Innovation’ column with commitments made by the applicant. For an example see the SMP Example Report on our website.*

|  |  |  |
| --- | --- | --- |
| **Actions** | **Potential Impact** | **Strategies and innovations** |
| **Rainwater harvesting** | Reduction in volume of stormwater to the stormwater system means integrity of stormwater infrastructure is protected.  Mains consumption is reduced by on-site reuse. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Water Sensitive Urban Design** | Increased infiltration means that groundwater flows are improved.  Treatment via raingardens means quality of stormwater entering the mains system is improved. | **Enter Here**  **Enter Here**  **Enter Here** |

# 5.0 Building Materials

A building’s life cycle impact is largely influenced by material selection, including embodied energy of the material, longevity/durability, source, ability to be reused / recycled and the toxicity of material components.

Standard and certification schemes for sustainable materials, such as EcoSpecifier’s Green Tag program and Good Environmental Choice Australia (GECA), provide an independent assessment and are the best starting point for material selection for sustainability.

*Replace the actions highlighted in red text within the ‘Response – Strategies and Innovation’ column with commitments made by the applicant. For an example see the SMP Example Report on our website.*

### Actions for sustainable material selection

| **Actions** | **Potential Impact** | **Strategies and innovations** |
| --- | --- | --- |
| **Re-use of existing materials** | Avoids sending waste to landfill as well as the higher embodied in new materials. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Recycled content materials** | Reduced embodied energy of material by using recycled content rather than virgin materials. | **Enter Here**  **Enter Here**  **Enter Here** |
| **PVC Minimisation** | Human health implications of PVC are related to chemical components used in manufacture, which are known carcinogens, mutagens and teratogens. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Sustainable Timber** | Avoid timber that may be illegally logged, from old growth forests, or from plantations that are poorly managed | **Enter Here**  **Enter Here**  **Enter Here** |
| **Dematerialisation** | Using less material where possible reduces the overall embodied energy of the building. | **Enter Here**  **Enter Here**  **Enter Here** |

# 6.0 Transport

Many transport impacts are inherent to a building’s location, such as the distance from employment, shops, services, schools and recreation. However, sustainable transport options can be facilitated through a building design that promotes convenient use of bicycles and reduced dependence on private vehicle use.

This development is located close to **Enter Here** Station, and **Enter Here** Bus Services, thereby providing a range of public transport options with close proximity. The **Enter Here** shopping precincts are within walking distance.

The development is also ideally located for bicycle commuters, being close to the **Enter Here** bike path. To facilitate sustainable transport choices, a bicycle storage room is provided in the apartment basement, with **Enter Here** bicycle parking spaces. End of trip facilities are also provided within each retail tenancy.

*Replace the actions highlighted in red text within the ‘Response – Strategies and Innovation’ column with commitments made by the applicant. For an example see the SMP Example Report on our website.*

### Actions for sustainable transport

|  |  |  |
| --- | --- | --- |
| **Actions** | **Potential Impact** | **Strategies and innovations** |
| **Bicycle parking on-site** | Reduced demand on car transport, reduced demand on public transport. Active & cost effective transport option. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Public transport access** | Provides an alternative to private vehicle use. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Pedestrian access** | Health and environmental benefits. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Car sharing schemes** | Has the potential to reduce private vehicle ownership. | **Enter Here**  **Enter Here**  **Enter Here** |

# 7.0 Waste Management

*Replace the actions highlighted in red text within the ‘Response – Strategies and Innovation’ column with commitments made by the applicant. For an example see the SMP Example Report on our website.*

### Actions for waste avoidance and recycling

|  |  |  |
| --- | --- | --- |
| **Actions** | **Potential Impact** | **Strategies and innovations** |
| **Construction Waste Management Plan** | Construction and demolition waste makes up approximately one third of waste to landfill in Victoria (Sustainability Victoria). Most of this waste is inert & can be easily recycled for other purposes. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Operational Waste Management Infrastructure** | Convenient infrastructure can significant improve recovery rates for recyclable materials | **Enter Here**  **Enter Here**  **Enter Here** |

# 8.0 Urban Ecology

Urban ecology is about promoting and protecting ecosystems and biodiversity. Urban and agricultural development has caused displacement of species and degradation of natural environments – therefore in many established urban areas the aim is to increase biodiversity. Biodiversity provides a number of services that have traditionally been, and continue to be, undervalued, such as:

* Protection of water resources
* Soil formation & protection
* Nutrient storage & recycling
* Pollution breakdown
* Ecosystem maintenance

*Replace the actions highlighted in red text within the ‘Response – Strategies and Innovation’ column with commitments made by the applicant. For an example see the SMP Example Report on our website.*

### Actions for urban ecology

| **Actions** | **Potential Impact** | **Strategies and innovations** |
| --- | --- | --- |
| **Re-use of land** | Development in existing urban areas helps reduce the need for greenfield development and the associated environmental impacts, such as car dependency, increased need for infrastructure and displacement of agricultural land. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Topsoil retention** | Retaining topsoil conserves the valuable resource it provides and reduces unnecessary waste to landfill. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Outdoor communal facilities** | On average, people spend 90% of their lives indoors. There is a growing body of evidence that demonstrates how communal green spaces can offer lasting economic, environmental and social benefits. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Biodiversity** |  | **Enter Here**  **Enter Here**  **Enter Here** |

# 9.0 Innovation and ESD Excellence

Innovation and ESD Excellence is a category designed to recognise new or outstanding ESD initiatives not recognised elsewhere (such as in the Green Star tools). This development is claiming the following initiatives under this category.

*Replace the actions highlighted in red text within the ‘Response – Strategies and Innovation’ column with commitments made by the applicant. For an example see the SMP Example Report on our website.*

### Actions for Innovation and ESD Excellence

|  |  |  |
| --- | --- | --- |
| **Actions** | **Potential Impact** | **Strategies and innovations** |
| **XXXX** | xxxx | **Enter Here**  **Enter Here**  **Enter Here** |
| **XXXX** | xxxx | **Enter Here**  **Enter Here**  **Enter Here** |

# 10.0 Construction and Building Management

*Replace the actions highlighted in red text within the ‘Response – Strategies and Innovation’ column with commitments made by the applicant. For an example see the SMP Example Report on our website.*

### Actions for ongoing building performance

|  |  |  |
| --- | --- | --- |
| **Actions** | **Potential Impact** | **Strategies and innovations** |
| **Building fine-tuning** | Ensures the building services operate as designed, throughout various climatic conditions and with realistic occupancy profiles. | **Enter Here**  **Enter Here**  **Enter Here** |
| **Building User’s Guide** | Provides educational information to the building occupants as to how to operate the building most effectively. | **Enter Here**  **Enter Here**  **Enter Here** |

# 11.0 Implementation and Commissioning

Implementation of the ESD initiatives in this report requires the following process:

* Full integration with architectural plans & specifications
* Full integration with building services design drawings & specifications
* Endorsement of the ESD report with town planning drawings
* ESD initiatives to be included in plans and specifications for building approval

*Replace red text within the ‘Responsibility’ column and nominate who from the project team is responsible for the delivery of each applicable action. For an example see the SMP Example Report on our website.*

The following implementation schedule is provided.

|  |  |  |  |
| --- | --- | --- | --- |
| **Actions** | **Requirement** | **Responsibility** | **Date Completed** |
| **FirstRate (NatHERS) Assessments** | *Full FirstRate ratings for each dwelling, based on recommendation of sample ratings* | *ESD Consultant, Architect* |  |
| **Window glazing** | *To be specified according to energy ratings & BCA* | *Architect, Builder* |  |
| **Insulation & sealing** | *To be specified according to energy ratings* | *Architect, Builder* |  |
| **Air-conditioning systems** | *Reverse cycle split systems, 5 star heating cycle and 5 star cooling cycle* | *Services Engineer, Builder* |  |
| **Hot water heating** | *Centralised solar-gas hot water system with a minimum* ***50% solar contribution*** *and a minimum* ***gas system efficiency of 86%*** | *Services Engineer, Builder* |  |
| **Lighting** | *To meet 5W/m2 as per BCA 2011* | *Architect, Builder* |  |
| **Security Doors** | *Security doors on all apartment entrance doors.* | *Architect, Builder* |  |
| **Motion / time switch controls** | *Common area lighting (including carpark lighting) to be controlled by motion sensors or timers as appropriate.* | *Services Engineer, Builder* |  |
| **Bike storage** | *60 bicycle parking spaces to be installed in basement storage room.* | *Architect, Builder* |  |
| **Clothes drying** | *Foldaway clotheslines to be installed to apartment balconies* | *Architect, Builder* |  |
| **Metering** | *Install separate water and electricity meters to each apartment* | *Services Engineer, Builder* |  |
| **VSD pumps/fans** | *Specify and install pumps and fans with variable speed drives* | *Services Engineer, Builder* |  |
| **Energy efficient lifts** | *Specify and install energy efficient lifts* | *Services Engineer, Builder* |  |
| **Apartment shutdown switches** | *Each apartment to have a ‘shutdown switch’ located inside entrance doors for all non-essential appliances.* | *Services Engineer, Builder* |  |
| **Rainwater tank** | *Specify and install 50,000 L rainwater with plumbing to all ground, first and second floor toilets.* | *Services Engineer, Builder* |  |
| **Water efficient toilets** | *Specify and install minimum 4 star toilets* | *Architect, Builder* |  |

|  |  |  |
| --- | --- | --- |
| **Water efficient taps** | *Specify and install minimum 5 star taps* | *Architect, Builder* |
| **Water efficient showers** | *Specify and install minimum 3 star showerheads* | *Architect, Builder* |
| **Water efficient appliances** | *Specify and install dishwashers with WELS star rating within 1 star of best available* | *Architect, Builder* |
| **Fire system test water capture** | *Specify and install fire system with ability to capture and reuse water.* | *Builder, Services Engineer* |
| **Concrete** | *Concrete to have minimum 20% recycled aggregate content.* | *Builder* |
| **Plasterboard** | *Plasterboard to have minimum 10% recycled content.* | *Builder* |
| **Timber** | *All timber to be FSC or AFS certified* | *Builder* |
| **Material Re-use** | *Bricks and other material to be salvaged from demolition of existing building and reused in new building.* | *Architect, Builder* |
| **Topsoil** | *Topsoil on existing site to be retained and used in landscaping for new building.* | *Builder* |
| **Construction Management Plan** | *Prepare Construction Waste Management Plan to maximise recycling of construction waste (80% min).* | *Builder* |
| **Low VOC paints, sealants, adhesives** | *Specify and use low VOC paints, sealants and adhesives* | *Architect, Builder* |
| **Building Users Guide** | *Prepare Building Users Guide and distribute to occupants. Display in prominent location at apartment entrance* | *Owner’s Corporation, ESD Consultant, Building Services* |
| **Building tuning** | *Undertake building services fine-tuning each quarter for the first 12 months of occupation.* | *Owner’s Corporation, Building Services* |

# APPENDIX A – Built Environment Sustainability Scorecard (BESS) Report

# INSERT COPY OF BESS SUMMARY REPORT

# – INCLUDE OTHER SUPPORTING REPORTS SUCH AS NatHERS SAMPLE RATIING AND STORM RESULTS