

37 Graham Road, Highett

Sustainability Strategy Development Plan

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Disclaimer

Energy modelling provides an estimate of a building's energy performance. This estimate is based on a necessarily simplified and idealised version of the building that does not and cannot fully represent all of the intricacies of the building and its operation. As a result, energy modelling results only represent an interpretation of the potential performance of a building. No guarantee or warrantee of building performance in practice can be based on energy modelling results alone.

The results generated from any modelling analysis within this report are based on specific criteria outlined in the National Construction Code (NCC) and Built Environment Sustainability Scorecard (BESS), along with best practice guidelines and are not considered to be a true representation of the actual operation of the building. The intent of these criteria is to permit the project team to estimate the expected annual energy consumption of the proposed building and therefore determine if the building has the ability to be energy efficient.



1. Executive Summary

This report has been prepared at the request of Sunkin Projects Pty Ltd. and is intended to provide an overview of the sustainable design strategy in support of the Development Application for the proposed development at 37 Graham Road Highett.

This Sustainable Strategy has been prepared to inform Bayside City Council of the proposed development's commitment to sustainability, measured against the documented performance guidelines in accordance with Council's Planning Scheme. The Built Environment Sustainability Scorecard (BESS) will be utilised as the sustainability benchmarking tool to demonstrate compliance with ESD requirements. BESS assessments will be carried out at the Town Planning approvals phase where individual lots or buildings will have a site specific ESD scope and assessment to demonstrate compliance.

The vision of this project is to create a vibrant neighbourhood that achieves environmentally sustainable design that provides social and economic benefit to the local community. The project will aim to improve the local environment and will give key consideration to sustainability initiatives throughout the course of design and construction. The project will achieve the following key sustainability targets:

- **Energy efficiency**, including reduction of energy demand through the design of an energy efficient building form and building fabric, design of energy efficient HVAC, lighting and domestic hot water systems, and selection of energy efficient appliances.
- **Water efficiency**, including water efficient sanitary fixtures, landscape drip irrigation with moisture sensor override, collection and re-use of rainwater for toilet flushing and irrigation, and re-use of fire protection system test water.
- **Indoor environment quality**, including provision of good access to natural ventilation and views out, appropriate mechanical ventilation and exhaust systems, an internal lighting design to provide uniformity of lighting and appropriate task lighting, an acoustic design to ensure adequate internal noise levels and acoustic separation between units, and selection of low VOC materials and low formaldehyde engineered wood products.
- **Stormwater management**, including a stormwater strategy to ensure that the peak event discharge from the site will not exceed the pre-development peak event discharge and also to ensure that the quality of the stormwater discharged from the site will meet the appropriate pollution reduction targets. A Water Sensitive Urban Design (WSUD) strategy, inclusive of MUSIC modelling, will be developed to meet and exceed the Urban Stormwater Best Practice Environmental Management Guidelines
- **Transport**, including the implementation of initiatives which will reduce emissions, encourage physical activity, and reduce the reliance on vehicle travel, for example, provision of bicycle parking and electric charging stations for EVs.
- **Waste Management**, including diversion of construction and demolition waste from landfill and an operational waste management strategy which will consider separation of waste streams and implementation of appropriate dedicated & accessible waste storage.
- **Urban ecology**, including provision of significant area of public parks and conservation area, and landscaping design & building features to reduce the impact of heat island effect, for example roofing materials and shading of roofs & hard scaping by vegetation or solar panels.
- **Innovation**, including ultra low VOC paints and community oriented facilities such as gyms, community centres

The project 's sustainability commitments include;

- Achieve at a minimum best practise ESD standard with a BESS benchmark assessment to demonstrate compliance.
- Energy and NatHERS rating in accordance with NCC requirements
- Enhanced community facilities through public realm such as parks, community facilities and landscaping



2. Project Background

2.1 Project Overview

The project located at 37 Graham Road Highett is a significant site which will contribute to the local area through the provision of significant conservation area, a public park and community facility. The development will also feature a mix of townhouses and medium density apartment buildings to activate the neighborhood and provide quality living environments for future residents.

2.2 Development Summary

The proposed built form can be summarised as follows:

- 3 Hectares of conservation area
- Public Park of 10,000 m²
- Community Facility of approximately 1000 m²
- Café and Gym tenancies approximately 350 m²
- Townhouse Lots of 3 & 4 bedrooms of 2- 3 storeys
- Apartments buildings with mixed typologies 14 Buildings of 3-7 Storeys
- Approximately 970 apartment dwellings and 76 townhouses are projected for the site
- Communal amenities – extent to be determined for each development phase

2.3 Project Site

The proposed development has a total site area of 53,287 m². The project site is shown in the image below and masterplan. Note the site shown below includes the conservation zone to be handed back to Council.



1.9 Masterplan - Proposed heights



2.4 Design Documentation

For further development summary information, please refer to the relevant design drawings documented by Clarke Hopkins Clarke nominated below:

- Development Application Masterplan Revision June 2021

2.5 Applicable Policy Requirements

The Project and ESD requirements for the development have been based on the following documents:

- Planning Scheme
- ACCB National Construction Code (NCC)
- Better Apartment Design Standards (BADs)

2.5.1 Planning Scheme Requirements – Bayside City Council

Bayside City Council Planning Scheme requires proposed development of 10 or more dwellings development of a non-residential building with a gross floor area of more than 1000m² to propose a Sustainability Management Plan (SMP) as part of the application requirement. The overarching objective is that development should achieve best practice in ESD from the design stage through to construction and operation in the following categories:

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



This Sustainability Strategy Development Plan has outlines the main ESD goals and targets of the development and identify broad sustainability scope and opportunities to meet the overarching objectives. Sustainability assessment tools such as BESS/Green Star and STORM/MUSIC are to be utilised as a guide to demonstrate that the proposed buildings has the design potential to achieve the relevant environmental performance outcomes given the site's opportunities and constraints.

2.5.2 ABCB National Construction Code – NCC

The National Construction Code (b) via Section J – energy efficiency sets the minimum mandatory building design performance required for Australian buildings. Performance requirement JP1 Energy Use states, a building including its services, must have the features that facilitate the efficient use of energy appropriate to-

- the function and use of the building; and
- the level of human comfort required for the building use; and
- solar radiation being
 - utilised for heating; and
 - controlled to minimise energy for cooling; and
- the energy source of the services; and
- the sealing of the building envelope against air leakage; and
- for a conditioned space, achieve an hourly regulated energy consumption in line with stated figures.

Additional commentary is provided within Section 3.2.4 in response to the above



3. Summary of Sustainability Commitments

3.1 Sustainability Vision

The development at 37 Graham Road Highett aims to effectively implement sustainable practises in order to reduce the project's overall environmental footprint through best practise energy efficient design & operation, effective Water Sensitive Urban Design (WSUD), rainwater reuse, landscape revegetation, recycled or sustainable alternatives to products and building materials, existing tree retention, encouraging alternative modes of transport such as cycling and walking

3.2 Sustainability Commitments & Targets

The following Environmentally Sustainable Design requirements:

- The Development will meet National Construction Code requirements with respect to energy and building fabric NatHERS ratings.
- The Development will apply Built Environment Sustainability Scorecard (BESS) to assess how the proposed development addresses the ESD planning objectives;
- The Development will comply with the Better Apartment Guidelines (BADs), December 2016, Department of Environment Land Water and Planning.
- The common areas of the Development must comply with NCC Section J requirements
- Energy targets to be recommended by an ESD consultant per each town planning application
- Each town planning application shall adhere to the relevant national code and other State or Council ESD policies that are applicable at the time of Town Planning.

3.3 Design Response

3.3.1 BESS

BESS is an environmental rating tools with the specific purpose of assisting industry in enabling a consistent and measured approach to the environmental rating of buildings.

BESS rates buildings on a scale of 0%-100%; a minimum overall score of 50% is required to achieve 'best practice'.

Both tools are made up of categories which represent a holistic review of the development of a building. The categories differ slightly but generally cover the following aspects of ESD:

- Management
- Indoor Environmental Quality
- Energy
- Transport
- Water
- Materials
- Land Use and Ecology
- Emissions
- Innovation



3.3.2 Nationwide House Energy Rating Scheme (NatHERS)

In order to achieve compliance with BCA Section J requirements related to energy efficiency, each of the Class 1/ Class 2 dwellings will target a minimum ratings as recommended by an ESD consultant per each stage Town Planning application, as rated using the latest version of FirstRate5 software. The software uses information such as building façade materials, bulk insulation, glazing thermal performance, and orientation in order to estimate the annual heating and cooling loads for the dwelling. This target exceeds the minimum requirements of the BCA which are a minimum of 5 Stars and an average rating of at least 6 Stars. NCC Part J energy standards applicable at the time of Town Planning shall be adopted and the project shall meet any revised energy ratings applicable.

3.3.3 BADS

To comply with the Better Apartment Design Guidelines the apartments in the development will have cooling loads no higher than 21 MJ/m²/yr NatHERS annual cooling load.

3.3.4 NCC Section J1-3 for Common Areas and Non-Residential Areas

The National Construction Code (NCC) requires a building to meet minimum energy efficient requirements and prove compliance via a Deemed-to-Satisfy (DtS) or Performance Solution. It is anticipated this project will achieve compliance via the DtS method of the common areas and non-residential areas and will exceed the performance requirements in NCC Sections J1 and J2. Where appropriate, JV3 modelling may be required to demonstrate compliance.



4. Sustainability Strategy

In line with the sustainability commitments and vision for this development, the sustainability management plan has been broken into 10 major categories.



These categories provide the framework to create a development with a holistic and thorough approach to environmental sustainability. The project design details have been carefully reviewed and curated to address each category and provide innovative solutions wherever applicable.



4.1 Management

In order to create an integrated design and construction process which in turn leads to effective operational and on-going building performance, the development seeks to address this category through the following on-site initiatives.

BUILDING INFORMATION

- A simple easy-to-use **Building Users Guide** is to be developed and issued to building occupants.

METERING & MONITORING

- Water and energy metering will be provided for different areas and uses of the project, for example, floor-by-floor metering when entire floor has a single use, and separate sub-meters for spaces with different uses. Energy loads >100kW and water uses with >10% of project's water use will be metered independently.
- Sub-metering of the body corporate energy and water consumption to allow for ongoing building tuning works by the Facility Manager.
- The metering network (including sub-meters) will be validated according to NABERS protocol or NMI standards, and will be commissioned and calibrated at the time of completion. Metering network will be capable of being monitored to detect and produce alerts if any inaccuracies are found.
- Residents shall have real time energy monitoring enabled via smart metering or other cloud based platform provided by the embedded network provider.

CONSTRUCTION ENVIRONMENTAL MANAGEMENT

- The head contractor will be required to prepare a site-specific Environmental Management Plan (EMP). The head contractor will have ISO 14001 Environmental Management System (EMS) accreditation.

4.2 Water Resources

With greater awareness of our water security issues, properties that are designed to use water more efficiently are becoming highly regarded by potential residents. Water saving measures such as water efficient fittings and fixtures (taps, shower heads etc.) and reuse systems are key features for water efficient design.

Overall the development will seek to address water efficiency and reduce the potable water demand for the building through the below initiatives.

WATER CONSERVATION

- Sanitary fixtures across all the development will be within one star of the WELS rating below:
 - Taps – 5 Star Kitchen Taps; 6 Star Basin taps
 - Toilets – 4 Star
 - Showers 3 Star (>6.0 but ≤7.5 L/min)
 - Dishwashers – 6 Star (where/if supplied)
 - Clothes washing machines – 5 Star (where/if supplied)
- A **fire protection system** will be designed to include temporary storage for 80% of the routine fire protection system test water and maintenance drain-downs for reuse on-site. If sprinkler systems are installed, each floor will be fitted with isolation valves or shut-off points for floor-by-floor testing.
- **Drip irrigation** with moisture sensor override will be installed. The landscaping and associated systems will be designed to reduce the consumption of potable water required for irrigation through the installation of subsoil drip irrigation and moisture sensor controls. Alternatively, the project might look into the viability of using no potable water for irrigation, depending on how much rainwater can be collected from the roof of the building – this will be investigated further as the project design is developed



WATER REUSE

- **Rainwater** will be collected and **re-used for landscape irrigation and toilet flushing** via a retention tanks. Each apartment block will have it's own tank and be connected to toilets and local irrigation. Rain water tank size and extent of toilet flushing will be determined on case by case basis for each apartment block to meet BESS water reuse scores and the WSUD reuse strategy .
- Each townhouse will be provided with a 2,000L rainwater tank for rainwater capture to be used for toilet flushing or have a solar hot water system as per NCC code requirements for Class 1 dwellings.

4.3 Energy Efficiency

The built environment within Australia contributes over **40%** of our total greenhouse gas emissions annually which is among the highest per capita in the world. **Intelligent design** can drastically improve energy efficiency and decrease greenhouse gas emissions associated with a building's operation.

This development has sought to include several sustainable initiatives designed in order to maximise the energy efficiency of the development. Energy efficiency initiatives proposed for inclusion within the development are outlined below:

BUILDING FABRIC

- Subject to detailed design and final thermal performance analysis, the project will meet NCC code minimum energy ratings targeting **6.0 Star NatHERS** average as a minimum. Each town planning application shall adhere to the relevant NCC energy standards at time of application.
Each apartment will achieve a maximum NatHERS **cooling load of 21 MJ/m²**
- The building will achieve **compliance with NCC** requirements for building fabric. The strategy for compliance incorporates external shading or use of effective glazing with solar control.
- **Glazing** selections will be optimised to meet the energy targets for each stage of the development
- **Operable windows** are provided to all living areas and bedrooms
- **Glazing placement and sizing** to be carefully managed (particularly to East, West, and South) to reduce unwanted heat gain/loss, while providing access to daylight and natural ventilation
- Considered specification of **construction materials and external cladding** to maximise positive influence of thermal mass and minimise unwanted heat gain/loss. This includes exposed concrete ceilings and a combination of insulated precast concrete external walls and insulated lightweight external and party wall construction.

APPLIANCES & EQUIPMENT

- All supplied appliances to be specified **within 1 Star rating** of maximum energy star rating (where available)
- A high efficiency centralised **heat pump system or solar boosted central gas fired system** will be installed to minimise greenhouse gas emissions from the **domestic hot water** demand from the sites. System selection to be determined at each phase of town planning application.
- **Any Inverter split system** units will have an energy rating of 5 Stars or higher are to be installed and sized to provide heating to the main living spaces of each unit.

SUSTAINABLE ENERGY SUPPLY

- **Rooftop Solar PV** array will be investigated to each apartment building to offset grid electricity usage and further reduce GHG emissions associated with the building's operation. Townhouse will have dedicated space for solar panels to allow future owners to purchase and install PV panels as an option.
- **Project will investigate 100% Certified Greenpower** to be bulk purchased via the embedded network operator will be explored further in design development. Using combined buying power this will achieve a far lower tariff than



is typical for the residential sector, allowing renewable energy to be purchased for the same or a lower rate than 'black' power would normally cost a household.

- **Fossil Fuel Free Design** to be reviewed and adopted at time of town planning stage should Council adopt a fossil fuel free design policy.

LIGHTING

- Energy efficient **LED** will be installed throughout.
- The **lighting power density** will be reduced by at least 10% below the maximum lighting power density allowable in Table J6.2a (NCC 2019). Independent light switching will be provided to each functional room (ex, living room, kitchens).
- Where practical, **external lighting** will be provided with motion sensors and/or timers. In order to improve safety of the development and allow for natural surveillance, some energy efficient external lighting may be provided and maintained when necessary.

CAR PARK VENTILATION

- Car park mechanical systems to include variable speed fan drives and **Carbon Monoxide (CO) monitoring** systems to improve energy efficiency and ensure systems only run when required.

RESIDENTIAL COMPONENT

- **Building Fabric** – Building fabric to meet NCC code minimum energy ratings
- **Domestic Hot Water** – The primary heating source for domestic hot water will be either solar boosted natural gas or an electric heat pump with COP of at least 3.5.
HVAC – HVAC system shall be electric systems and the following requirements will be met:
(A) The minimum energy star rating for the air conditioning equipment is at least 3-star (as per AS 3823.2-2011); and
(B) The rated capacity of the air conditioning equipment does not exceed the design heating capacity by more than 20% and the design cooling capacity by more than 10%.
- The apartments and common spaces will be conditioned (heated and cooled) and mechanically ventilated.
- **Lighting** - The lighting power density will be reduced by at least 10% below the maximum lighting power density allowable in Table J6.2a. Independent light switching will be provided to each functional room (ex, living room, kitchens). Communal areas with automated lighting control system(s), such as occupant detection will also be provided. Energy efficient LED lighting will be installed throughout.
- **Appliances & Equipment** – All installed (supplied only) appliances will have a minimum Energy Rating of 1-star below the maximum Energy Rating available for that appliance type and capacity. This includes: Refrigerators/freezers; Dish washers; Clothes washers; and Clothes dryers.
- **Electric induction cooking** – to be considered for inclusion at time of Town Planning Application and adhere to Council policy applicable at time of application

NON-RESIDENTIAL COMPONENT

- For the retail and common areas, the minimum Deemed-to-Satisfy performance requirements stipulated within parts J1 and J2 of the NCC will be exceeded by at least 5%.

4.4 Stormwater Management

The design team recognizes and embraces that by reducing stormwater run-off from the site the project has the potential to improve natural ecosystem health and improve natural ecology beyond the site boundary. Measures taken to reduce stormwater runoff include:



WATER SENSITIVE URBAN DESIGN (WSUD)

- A **WSUD** strategy has been developed for the site, inclusive of MUSIC modelling. The WSUD strategy can be found in the **Stormwater Management Plan**, issued under separate cover.
- The WSUD strategy involves a combination of **detention/retention tank** collecting stormwater from roofs and rain gardens to manage landscape road and pavement runoff.
- Stormwater management, including a stormwater strategy is to ensure that the peak event discharge from the site will not exceed the pre-development peak event discharge and also to ensure that the quality of the stormwater discharged from the site will meet the appropriate pollution reduction targets. A Water Sensitive Urban Design (WSUD) strategy, inclusive of MUSIC modelling, will be developed to meet and exceed the Urban Stormwater Best Practice Environmental Management Guidelines

4.5 Indoor Environmental Quality

Indoor Environment Quality (IEQ) has been defined as a key sustainable building category in order to improve indoor environments for building occupants which in turn aims to improve their overall wellbeing. Australians spend 90% or more of their time indoors. Therefore, consideration to improving indoor environmental quality is a vital step within the design process for any modern building.

The proposed development seeks to improve the overall Indoor Environmental Quality (IEQ) for building occupants by addressing the following elements:

INDOOR AIR QUALITY

- The **ventilation system** will comply with ASHRAE Standard 62.1 in regards to minimum separation distances between pollution sources & outdoor air intakes.
- Operable windows and **cross flow strategies** shall be employed throughout the building with the aim of maximising fresh air intake and reducing the need for mechanical ventilation, thus lowering overall energy use.
- All **kitchens will be ventilated** in accordance with AS 1668.2-2012. A separate exhaust system will be provided for the kitchen exhaust.
- All **pollutants from** vehicles in an enclosed space will be exhausted to a dedicated exhaust riser or directly to the outside, in accordance with Section 4 of AS 1668.2-2012. This exhaust system will not recycle air to other enclosures.

ACCESS TO DAYLIGHT

- Building orientation, eave and facade design, glazing and material selection will be designed with the intent to achieve **natural daylight** to nominated areas living areas and bedrooms while maintaining a high thermal performance
- Glazing will be selected to maximise access to daylight while prioritising thermal performance necessary to achieve the targeted energy consumption outcomes. The VLT of the selected glazing will be a **minimum of 60%** given that the thermal performance required is achieved.
- All bedrooms and living rooms within the design are afforded **direct access to natural light**. There will be no borrowed light spaces within the development.
- Apartments will aim to meet the BESS deemed to satisfy provisions for daylight.

VISUAL COMFORT

- **Balcony overhangs** will provide significant shading to the majority of glazed areas, reducing the overall solar heat gain of those spaces.



- All bedrooms and living rooms primary spaces will have a **clear line of sight** to high quality internal or external views.

INDOOR POLLUTANTS

- **Low Volatile Organic Compounds (VOC)** internally applied paints, carpets, adhesives and sealants will be selected for the project.
- **Low Formaldehyde** engineered wood products (particleboard, plywood, MDF) will be selected for the project.

THERMAL COMFORT

- Residential spaces in the project will meet code compliance and BADs cooling loads to demonstrate apartments will achieve good thermal comfort performance.

4.6 Alternative Transport

The adoption of sustainable transport methods are encouraged by building designs which provide appropriate facilities for occupants and visitors. Site proximity to major transport infrastructure also lends itself to building residents adopting and utilising sustainable methods of transport.

BICYCLE PARKING

- **Secure resident bicycle spaces** shall be provided within apartment buildings.
- **Visitor spaces** will be provided outside of the main building entrance.

CAR PARKING

- A project specific Traffic Report has been developed under separate cover. Car parking provisions have been minimised in order to encourage alternative modes of transportation

MOTORBIKE PARKING

- **Designated motorbike** parking spots will be allocated.

ELECTRIC VEHICLE INFRASTRUCTURE

- **Electrical infrastructure** will be installed to allow for the provision of EV charging points to enable the majority of residents to have the option of EV charging should they require.

4.7 Waste Minimisation

Construction and demolition activities account for a large percentage of the waste and recycling generated by a site when compared to its general operation. There is now a growing level of interest in 'green' buildings, which through careful design use less resources and energy than conventional buildings, and provide healthier environments for staff.

CONSTRUCTION AND DEMOLITION WASTE

- The head contractor will commit to divert at least 80% of the waste generated during construction and demolition from landfill.

OPERATIONAL WASTE

- **Clearly labelled recycling bins** will be provided in refuse rooms, along with hard waste collection area for larger items.
- On-site organic waste systems will be provided.



- Waste facilities shall allow for provision of specialist waste recycling such as electronic waste, clothes, batteries etc.

4.8 Urban Ecology

In order to protect and enhance the local biodiversity and urban ecology, the development seeks to address this ESD category through the following on-site initiatives.

COMMUNAL SPACES

- **Communal landscaping will** be a key feature of the development. It is envisaged that 30,000 m² of parkland conservation will be provided as well as 10,000 m² of landscaped park for the local residents.

SITE VEGETATION

- The project will incorporate landscaping over roughly **50% of the site area**, helping reduce the urban heat island effect and provide amenity for residents.
- Community gardens will be considered as part of landscape design to encourage residents to grown vegetables and serve as a point for community interaction.

PRIVATE BALCONIES

- Each dwelling will have a **private outdoor courtyard or balcony** to allow greater access to the outdoors without having to leave the comfort of home.

SUSTAINABLE SITES

- The site is a **brownfield site** development (reusing an existing site), thus minimising the environmental impact of a greenfield development.
- **No critically endangered or vulnerable species** were present on site at time of purchase. At the time being no improvement in the ecological value of the site is anticipated.
- A comprehensive **hazardous materials survey** has been carried out on the site. Any asbestos, lead or PCBs found on site have been stabilised or removed.

HEAT ISLAND EFFECT

- At least 75% of the total project site area comprises of building or landscaping that **reduce the impact of heat island effect** (for example, rooftop landscaping, roofing materials with a three year SRI>64, hard scaping elements shaded by vegetation or roof structures like PVs or hot water panels).
-

4.9 Sustainable Building Materials

A significant amount of material is expected to be used within the development. Embodied energy is often a key consideration overlooked in material selection. The proposed development seeks to address and manage the selection and specification of sustainable building materials.

MATERIAL REDUCTION

- The selection of a **limited materials palette**, along with a focus on raw finishes, aims to reduce total material usage in the project.

HEALTHY MATERIALS SPECIFICATION

- During the project's detailed design phase all materials will be evaluated regarding their potential toxicity. This will result in the specification of **low or zero VOC** paints, materials, adhesives and finishes throughout.
- Selections for permanent formwork, pipes, flooring, blinds and cables will be either PVC free products or meet **PVC Best Practice Guidelines**.



RESPONSIBLE BUILDING MATERIALS

- The **building's steel (structural & reinforcing) will be sourced from a Responsible Steel Maker**. This means that the steel making facilities are ISO 14001 certified, and the steel maker is member of the World Steel Association's (WSA) Climate Action Programme (CAP).
- Assuming a concrete framed building, at least **60% by mass** of all reinforcing steel bar and mesh is produced using energy-reducing processes in their manufacture. Reinforcing steel sourced from a steel maker using Polymer Injection Technology is an example of a compliant product.
- **Timber selections** for the project will be sourced from sustainable locations (for example FSC or PEFC accreditation) or will be re-used timber. No unsustainable rainforest timbers will be incorporated on site i.e. no Oregon, Western Red Cedar, Meranti, Merbau, Teak or Lua. Timber uses include formwork, structural and non-structural timber, external and internal cladding, finishes, joinery, furniture items
- Selections for permanent formwork, pipes, flooring, blinds and cables will be either PVC free products or meet **PVC Best Practice Guidelines**.
- Subject to structural engineering requirements, the project will specify recycled content (fly ash or furnace slag) in **structural concrete**. Non-structural concrete will include minimum 30% flyash or slag as a Portland cement replacement product (subject to confirmation from the structural engineer).
- Encourage use of materials that incorporate recycled plastic or other recycled materials.

CONSTRUCTION AND DEMOLITION WASTE

- The head contractor will commit to divert **80%** of the waste generated during construction and demolition from landfill. All waste contractors and waste processing facilities will hold a 'Compliance Verification Summary' issued by a Suitable Qualified Auditor confirming compliance with Green Star reporting criteria.

4.10 Innovation

These are strategies which encourage innovative technology, design and processes in all aspects of the development, which positively influence the sustainability of the building

Other innovations:

- Crime Prevention Through Environmental Design (CPTED) Study to be conducted to enhance safety and security for residents and broader neighbourhood through passive surveillance methods
- Construction of roads and public paver to use recycled materials
- Public furniture to be made of recycled materials where possible



Design with
community in mind

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For more information please visit
www.stantec.com

