SURRY HILLS SHOPPING VILLAGE

SYDNEY, NSW

Project

PLANNING PROPOSAL STAGE ESD REPORT

TOGA GROUP

Client

EMF Griffiths

SUSTAINABILITY CONSULTANTS

'ISSUE 3'

DECEMBER 23 2015

PROJECT NO. S215671

DOCUMENT CONTROL					DOCUMENT ID: S215671DAesdRev3-mdr	
Issue	Date	Issue description	Typed	Author	Authorisation	Verification
A	11/08/2015	DRAFT PLANNING PROPOSAL STAGE	ED	TG		
0	20/08/2015	PLANNING PROPOSAL STAGE	ED	TG		
1	17/12/2015	REVISED PLANNING PROPOSAL STAGE	ED	MD		
2	18/12/2015	REVISED PLANNING PROPOSAL STAGE	ED	MD		
3	23/12/2015	REVISED PLANNING PROPOSAL STAGE	ED	MD		

INDEX

EXECUTIVE SUMMARY **1**

SECTION 1.0 INTRODUCTION **4**

1.1 BUILDING DESCRIPTION 4

SECTION 2.0 SUSTAINABLE DEVELOPMENT PRINCIPLES **6**

2.1 APPLY PRINCIPLES AND PROCESSES THAT CONTRIBUTE TO ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD) IN DEVELOPMENT AND OVER ITS EFFECTIVE LIFE 6
2.2 REDUCE THE CAUSE AND IMPACTS OF THE URBAN HEAT ISLAND EFFECT 6
2.3 INCREASE THE RESILIENCE AND ADAPTABILITY OF THE DEVELOPMENT TO THE EFFECTS OF CLIMATE CHANGE. 7
2.4 ENSURE THAT GREENHOUSE GAS EMISSIONS WILL BE REDUCED 7
2.5 INCREASE THE USE OF COGENERATION AND TRI-GENERATION SYSTEMS 8
2.6 REPLACE INTENSIVE CARBON POWER SOURCES WITH LOW CARBON AND RENEWABLE ENERGY 8
2.7 REDUCE THE USE OF POTABLE WATER 8
2.8 ENSURE THAT WASTE WILL BE REDUCED 9
2.9 IMPROVE INDOOR ENVIRONMENTAL QUALITY 9
2.10 REDUCE THE ENVIRONMENTAL IMPACT FROM BUILDING MATERIALS THROUGH REDUCTION, RE-USE AND RECYCLING OF MATERIALS, RESOURCES AND BUILDING COMPONENTS 9
2.11 IMPROVE THE BIODIVERSITY 10
2.12 SUPPORT GREEN TRANSPORT 10
2.13 DEVELOP ADAPTABLE BUILDINGS AND SPACES 10
2.14 BUILD A SAFE AND DIVERSE COMMUNITY 11
2.15 INFORM THE END OWNER AND USER 11

APPENDIX A: WALKSCORE RESULTS **12**

EXECUTIVE SUMMARY

The proposed development, Surry Hills Shopping Village, Sydney, comprises one (1) level of supermarket, four (4) to eight (8) levels of residential, areas of specialty retail and two (2) levels of basement car parking.

EMF Griffiths are the project's sustainability consultants. This report outlines the project's commitment to sustainable development principles with respect to ESD.

The City of Sydney Council has outlined its aspirations and therefore guidelines for achieving its goals regarding Ecologically Sustainable Development. This report identifies the project's response and commitment to these principles. Targeted initiatives have been adopted from NABERS and Green Star, thereby demonstrating a "best practice" ESD framework.

The key achievements which can be considered a sustainable development principles with respect to ESD are as follows:-

Establish agreed sustainable design values	• Clear sustainable outcomes and priorities how the proposed development protects, manages and enhances natural systems and promotes the efficient use of materials, water and energy to minimise impacts on the environment.
Reduce impacts of the urban heat island effect	• The design team has actively incorporated design principles that mitigate the occurrence and therefore impact of urban heat island effect. • Green roof above the supermarket provides a highly reflective surface, with a low solar absorptance, reducing heat island effect, whilst also reducing site run-off.
Increased Resilience To the Effects of Climate Change	• All plant rooms, switchboards/substations, auxiliary power/fuel supply, communications and fire services are to be flood and storm event proof, located on levels significantly above site flood levels. • Building cabling entry points to be constructed to prevent flood ingress. • Emergency power supply shall be provided via standby diesel generators located significantly above the flood level. • A building power load management system used to prioritise emergency power distribution. • Provide onsite storage and fuel for 24hr generator usage at full load. • Provide water ingress detection (via BMS and local alarm) for lift pits, and provide for automatic stopping at ground level and isolation of all lifts prior to water reaching lift equipment. • Native and resilient/low water flora to be selected within the landscape design. • Rainwater capture and collection, to be used for irrigation and where possible other non-potable sources. • Passive design principles incorporated to reduce internal loads for projected warmer climates.
Ensure that greenhouse gas emissions will be reduced	• Passive design techniques to reduce internal plant loads (optimising building fabric, glazing, natural ventilation, thermal mass, insulation and shading) • Energy efficient lighting design • Specifying highly energy efficient building services, such as: - High COP chillers; - Efficient fans and pumps; - Efficient water heaters; and - VSDs to fans and pumps • Investigate the viability of renewable energy sources, such as photovoltaics and solar hot water
Replace intensive carbon power sources with low carbon and renewable energy	• Energy sub meters to all substantial energy (greater than 10,000kWh/a), light and general power consumption for common areas, along with an effective mechanism in place for monitoring energy consumption data will be used within the building. • Energy efficient lighting will be specified for streets, parks and other public domain spaces. • Car parking areas are to be designed for potential electric vehicle charging points • Electrical sub-metering is to be provided for lighting, air-conditioning and power within each tenancy or strata unit. • Metering will be provided to each apartment and studio to inform the users on their use and management of electricity. • A comprehensive pre-commissioning, commissioning, and quality monitoring will be performed for all building services (BMS, mechanical, electrical and hydraulic).

	• Provision for the incorporation of photovoltaic panels and solar hot water panels will be investigated to determine its viability due to site constraints, electrical demand profile and cost effectiveness.
Reduce the use of potable water	• Water meters for all major water uses, and for any retail building over 5,000sqm, with an effective mechanism in place for monitoring water consumption data will be used in the building. • Rainwater collected from the roof in a rainwater tank and used for irrigation and where possible flushing WC's. • All new water fittings and fixtures such as showerheads, water tap outlets, urinals and toilet cisterns, in all non-residential development, the public domain, and public and private parks are to be specified with the highest Water Efficiency Labelling Scheme (WELS) star rating available at the time of development. • 4 star WELS rated taps, 4 star WELS rated toilets and 3 star WELS rated shower roses will be used in residential units. • Dishwasher and clothes washers installed as part of the base building works will be at or within one star of the highest available rating under the Australian's Government WELS rating system • Gross pollutant trap in the basement area for treatment of stormwater prior to discharge, will allow for interception of pollutants and provide treatment to the stormwater runoff from the podium areas. • Separate meters are to be installed for the make-up lines to major water consumption facilities. • Where cooling towers are used they are to be connected to a: - Recirculating cooling water loop; and - Conductivity meter so that the blow down or bleed off system in a cooling tower can be automated based on conductivity. This ensures that the water is being re-circulated an optimum number of times before being discharged to the sewer.
Ensure that waste will be reduced	• Re-use or recycle 80% (by mass) of all demolition and construction waste. • Dedicated storage area for the separation, collection and recycling of waste to accommodate cardboard, glass and plastics. • General waste chutes will be provided on each floor with accompanying recycling bins.
Improve indoor environmental quality	• Volatile Organic Compounds levels in interior finishes and products. • Products low in formaldehyde emission levels. • Where practical, window openings to bedrooms and common areas will allow for natural ventilation whilst complying with the BCA operability restrictions and acoustic constraints. Bedrooms and common areas restricted by stringent acoustic constraints may be fixed. • Adaptive comfort control shall be investigated, allowing for internal set-points that adjust depending on outdoor environmental conditions, thus saving energy and better conditioning internal spaces for a fluid transition with the outdoor environment.
Reduce the environmental impact from building materials through reduction, re-use and recycling of materials, resources and building components	• Timber and composite timber products used in the building and construction works to be sourced from either/or a combination of post-consumer re-used timber; or Forest Stewardship Council (FSC) certified Timber as appropriate for the project. • PVC products or products containing PVC to meet the Best Practice Guidelines for PVC in the built environment. • Thermal insulants and refrigerants to avoid the use of ozone-depleting substances in both manufacture and composition. • Wall, ceiling, carpet and floor finishes, and adhesives and sealants to have low Volatile Organic Compounds content limits. • Composite wood products used to be low in formaldehyde emission levels (rated E0). • Non-allergenic materials to be selected for furnishings.
Improve biodiversity	• Landscaping design to be low water use and predominately native planting. • Additional planting for street trees and new planting in residential gardens, to encourage biodiversity. • Rainwater with drip irrigation/moisture control to be used for landscape irrigation. • Minimise pesticides, herbicides and chemical fertilisers • Suitable systems to be implemented to improve runoff water quality.
Create healthy indoor environments	• Volatile Organic Compounds levels will be minimised in interior finishes and products. • Products will be low in formaldehyde emission levels. • Where practical, window openings to bedrooms and common areas will allow for natural ventilation whilst complying with the BCA operability restrictions and acoustic

	constraints. Bedrooms and common areas restricted by stringent acoustic constraints may be fixed. • Sky gardens to common areas to be equivalent in size to at least 15% of the common area, and have managed solar access by natural vegetation.
Support green transport	• Secure bicycle parking spaces and lockers will be nominated for residents in a central bicycle centre, and additional bicycle parking spaces will be nominated for visitors and staff of retail facilities distributed around the landscape. • Achieve a Walk Score of 98% (see Appendix A for further details). • Provision for charging bays for electric cars and bikes.
Develop adaptable buildings and spaces	• Communal garden planting to common areas will manage solar access and encourage connection with the outdoors. • Open landscaped areas to encourage active play such as fitness, running, jumping, chasing and ball games. • Sun-shaded areas from trees, buildings, pergolas or other sun-shading devices. • Seating to be provided to different quiet areas (open lawn and residential gardens) with views of landscaped areas. • Outdoor dining area for two separate dinner parties of minimum six people (open lawn and residential gardens). • Barbeque facilities to be provided for communal areas. • Connected, safe, attractive, well-lit and efficient walking and cycling pathway spaces (including streets and open spaces) which will also connect with paths in neighbouring areas, properties and facilities.
Build a safe and diverse community	• Design includes an integrated public space that will be highly activated by retail and outdoor seating and transitional spaces • Development will be located within 100m of the existing bus stops and within 800m of an existing train station. • Achieve a Walk Score of 98% (see Appendix A for further details). • Provide a community communication system (e.g. intranet, newsletter, community notice board).
Inform the end owner and user	• The development will provide the end owner and user with a guide.

SECTION 1.0 INTRODUCTION

EMF Griffiths has been engaged by Surry Hills Projects Pty Ltd (a TOGA Group related entity) to report on Sustainable Development Principles required by The City of Sydney Council for Surry Hills Shopping Village.

To facilitate the creation of a sustainable urban development, the project focuses on the following key principles:-

1. Promoting and maintaining livable communities.
2. Providing economic benefit.
3. Protecting ecological values and optimising resource use.
4. Promoting planning and design excellence.

This report will demonstrate how the proposed development protects, manages and enhances natural systems and promotes the efficient use of materials, water and energy to minimise impacts on the environment. It will illustrate the project's compliance with the criteria noted and will focus on the specific measures that contribute to sustainable development principles.

The City of Sydney Council has outlined its aspirations and therefore guidelines for achieving its goals regarding Ecologically Sustainable Development. This report identifies the project's response and commitment to these principles. Targeted initiatives have been adopted from NABERS and Green Star, thereby demonstrating a "best practice" ESD framework.

1.1 BUILDING DESCRIPTION

The Surry Hills Shopping Village development proposal comprises a shopping complex consisting of a large >4000sqm supermarket, smaller specialty retail units, residential townhouses, terraced residential dwellings, and 4-8 levels of residential apartments spread across the podium. The retail and residential areas will be served by 2 levels of basement car parking. The proposed scheme contains a diverse mix of building heights, recreational spaces and uses that activate the frontages.

The proposed development adopts a range of building heights and forms across the balance of the site and consists of:

- Car parking:
  - Retail = 279 spaces (including 16 accessible), 26 motorbikes
  - Residential = 167 spaces (including 40 accessible, 13 visitor), 14 motorbikes
- Total Residential NSA – 16,819m^2
- Total Retail GLAR – 7,825m^2
- Total GFA – 26,937m^2

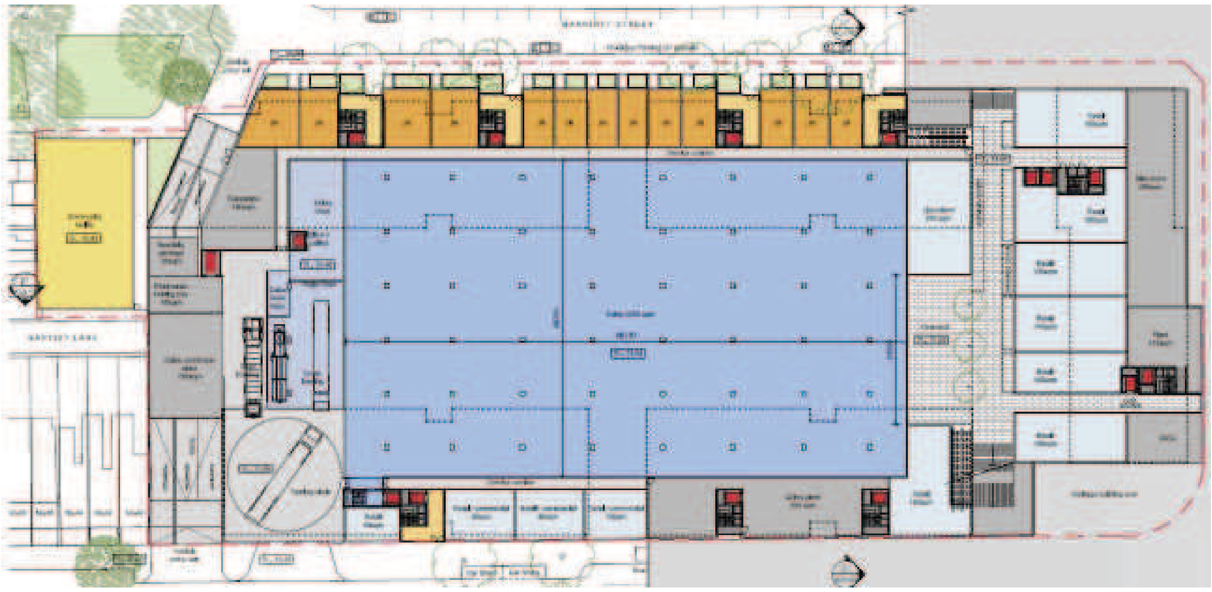

Figure 1: Lower Ground Floor Retail Plan

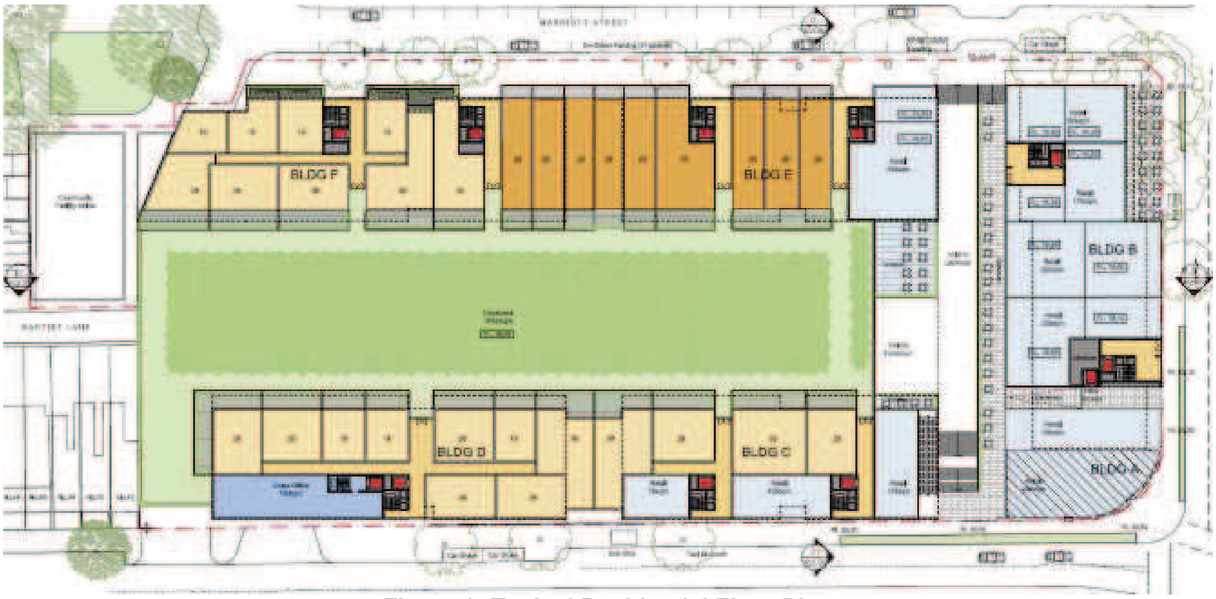

Figure 2: Typical Residential Floor Plan

SECTION 2.0 SUSTAINABLE DEVELOPMENT PRINCIPLES

Significant measures have been undertaken to ensure that this development responsibly responds to the local environment and gives consideration to the environmental, social and economic sustainability aspects for the buildings' occupants, users and the wider community.

The ESD principles, goals and strategies for the Surry Hills Shopping Village are described as follows:-

Vision	**To create a sustainable urban community**			
Principles	Promoting and maintaining a liveable community.	Providing economic benefit.	Protecting ecological values and optimising resource use.	Promoting planning and design excellence.
Goals	A community that is diverse, safe and healthy, has access to services, jobs and learning, that fosters active local participation and is a pleasant place to live, work and visit while integrating with and enhancing the value of existing neighbourhoods.	Economic benefit is maximised by facilitating the release of urban land, incorporating lifecycle costs including operational savings, long term employment opportunities, and creating partnering opportunities and long term value.	Protect, manage and enhance natural systems, habitats and biodiversity, and promote the innovative and efficient use and management of materials, water and energy to minimise impacts on the climate.	Develop a modern resilient and adaptable urban form that promotes connectivity, safety and accessibility whilst recognising existing local values and aspirations.
Strategies	• Housing affordability. • High quality of life. • High levels of community participation. • Healthy and safe communities. • Respect existing communities.	• Public benefit. • Lifecycle costs. • Land supply. • Partnerships. • Sustainability champion.	• Climate impact. • Water. • Energy and transport. • Materials and waste. • Habitats and biodiversity. • Pollution.	• Community and place. • Responsive urban form. • Quality public realm. • Infrastructure. • Connectivity, safety and accessibility. • Engagement and partnerships.

2.1 APPLY PRINCIPLES AND PROCESSES THAT CONTRIBUTE TO ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD) IN DEVELOPMENT AND OVER ITS EFFECTIVE LIFE

This report sets clear sustainable outcomes and priorities how the proposal gives consideration to the management and enhancement of natural systems and promotes the efficient use of materials, water and energy to minimise impacts on the environment. It will illustrate the project's compliance with the criteria noted and will focus on the specific measures that contribute to sustainable development principles.

2.2 REDUCE THE CAUSE AND IMPACTS OF THE URBAN HEAT ISLAND EFFECT

The design team has actively incorporated design principles that mitigate the occurrence and therefore impact of urban heat island effect. Such strategies include the provision of additional planting around the perimeter of the development, thus providing vegetation which allows for evaporation of moisture into the air during high temperature events. Trees also provide additional shading during summer months which reduce the amount of solar radiation contacting streets and pavements, thus alleviating the urban heat island effect.

The green roof above the supermarket provides a highly reflective surface, with a low solar absorptance, reducing the heat island effect, whilst also reducing site run-off.

Finishes with low solar absorptance (SA) will be specified, thus reducing the materials ability to absorb and subsequently transmit heat.

2.3 INCREASE THE RESILIENCE AND ADAPTABILITY OF THE DEVELOPMENT TO THE EFFECTS OF CLIMATE CHANGE.

The design team will proactively incorporate robust design solutions to ensure and maintain a resilient development with respect to climate change. As the building is within a high flood risk area, the following provisions will be considered:

- All plant rooms, switchboards/substations, auxiliary power/fuel supply, communications and fire services are to be flood and storm event proof, located on levels significantly above site flood levels.
- Building cabling entry points to be constructed to prevent flood ingress.
- Emergency power supply shall be provided via standby diesel generators located significantly above the flood level.
- A building power load management system used to prioritise emergency power distribution.
- Provide onsite storage and fuel for 24hr generator usage at full load.
- Provide water ingress detection (via BMS and local alarm) for lift pits, and provide for automatic stopping at ground level and isolation of all lifts prior to water reaching lift equipment.
- Native and resilient/low water flora to be selected within the landscape design.
- Rainwater capture and collection, to be used for irrigation and where possible other non-potable sources.
- Passive design principles incorporated to reduce internal loads for projected warmer climates.

2.4 ENSURE THAT GREENHOUSE GAS EMISSIONS WILL BE REDUCED

Faced with ever increasing fuel costs, be it gas or electricity, the importance of reducing a buildings annual energy consumption from the onset is ever present. A potentially minimal increase to the buildings capital cost can be compensated by the buildings reduced ongoing operational costs. Reduced annual energy consumption also aligns with reduced annual greenhouse gas emissions, specifically in the form of tonnes of carbon dioxide. There are various means by which a buildings annual energy consumption can be reduced, be it via passive improvements to the developments building fabric, or via the installation of highly efficient mechanical plant.

The design team actively seeks to minimise the developments greenhouse gas emissions through the passive design hierarchy, in line with the following:

- Passive design techniques to reduce internal plant loads (optimising building fabric, glazing, natural ventilation, thermal mass, insulation and shading).
- Energy efficient lighting design.
- Specifying highly energy efficient building services, such as:
  - High COP chillers.
  - Efficient fans, pumps.
  - Efficient water heaters.
  - VSDs to fans and pumps.
- Investigate the viability of renewable energy sources, such as photovoltaics and solar hot water.

In order to test and therefore quantify each variation to the buildings' envelope or mechanical system the design team will engage an energy simulation specialist who is able to iteratively and incrementally update a model of the proposed building as the design progresses. This ensures that the final design provides an optimal balance of insulation, glazing performance, energy efficient lighting and mechanically enhanced design solution.

In regards to the residential component, the design team seeks to achieve a maximum heating load of $66MJ/m^2$ and a cooling load of $59MJ/m^2$, in climate zone 56 (East Sydney) for an individual dwelling in a multi-dwelling development. This will ensure compliance with the BASIX thermal comfort section.

2.5 INCREASE THE USE OF COGENERATION AND TRI-GENERATION SYSTEMS

The proposed development does not have a suitable load profile to efficiently utilise the benefits of co- or tri-generation.

2.6 REPLACE INTENSIVE CARBON POWER SOURCES WITH LOW CARBON AND RENEWABLE ENERGY

Reductions in grid supplied electricity consumption and demand has an impact upon greenhouse gas emissions and energy production capacity as well as other emissions associated with energy generation. In order to minimise the load on Sydney's electricity demand and dependence on diminishing non-renewable energy sources, the following sustainable development principles will be considered;

- Energy sub meters to all substantial energy (greater than 10,000kWh/a), light and general power consumption for common areas, along with an effective mechanism in place for monitoring energy consumption data will be used within the building.
- Energy efficient lighting will be specified for streets, parks and other public domain spaces.
- Car parking areas are to be designed and constructed for potential electric vehicle charging points.
- Electrical sub-metering is to be provided for lighting, air-conditioning and power within each tenancy or strata unit.
- Metering will be provided to each apartment and studio to inform the users on their use and management of electricity.
- A comprehensive pre-commissioning, commissioning, and quality monitoring will be performed for all building services (BMS, mechanical, electrical and hydraulic). In order to ensure that the building is set up in an energy efficient manner.
- Provision for the incorporation of photovoltaic panels and solar hot water panels will be investigated to determine its viability due to site constraints, electrical demand profile and cost effectiveness.

2.7 REDUCE THE USE OF POTABLE WATER

Reducing the demand for water, through the use of low flow fittings, and the efficient design of water in building systems can additionally reduce building owners' operational costs. In seeking to minimise the load on Sydney's water, sewer and stormwater infrastructure, the following sustainable development principles will be considered;

- Water meters for all major water uses, and for any retail building over 5,000sqm, with an effective mechanism in place for monitoring water consumption data will be used in the building.
- Rainwater collected from the roof in a rainwater tank and used for irrigation and where possible flushing WC's.
- All new water fittings and fixtures such as showerheads, water tap outlets, urinals and toilet cisterns, in all non-residential development, the public domain, and public and private parks are to be specified with the highest Water Efficiency Labelling Scheme (WELS) star rating available at the time of development.
- 4 star WELS rated taps, 4 star WELS rated toilets and 3 star WELS rated shower roses will be used in residential units.
- Dishwasher and clothes washers installed as part of the base building works will be at or within one star of the highest available rating under the Australian's Government WELS rating system.

- Gross pollutant trap in the basement area for treatment of stormwater prior to discharge, will allow for interception of pollutants and provide treatment to the stormwater runoff from the podium areas.

- Separate meters are to be installed for the make-up lines to major water consumption facilities.

- Where cooling towers are used they are to be connected to a:

  - Recirculating cooling water loop; and

  - Conductivity meter so that the blow down or bleed off system in a cooling tower can be automated based on conductivity. This ensures that the water is being re-circulated an optimum number of times before being discharged to the sewer.

2.8 ENSURE THAT WASTE WILL BE REDUCED

The City of Sydney is working to minimise waste by decoupling material consumption from building construction, demolition, refurbishment and operations. Minimising and recycling this waste can have significant social, economic and environmental benefits. In relieving the pressure on Sydney's landfills and natural resources, the following sustainable development principles will be considered;

- Re-use or recycle 80% (by mass) of all demolition and construction waste.

- Dedicated storage area for the separation, collection and recycling of waste will be provided, to accommodate cardboard, glass and plastics.

- General waste chutes will be provided on each floor with accompanying recycling bins.

2.9 IMPROVE INDOOR ENVIRONMENTAL QUALITY

Implementation of a healthy indoor environment enhances the comfort and well-being of building occupants. Visually appealing outdoor landscapes provides residents with access to highly stimulant external views as well as the opportunity to relax thus improving health, quality of life and productivity. Ensuring healthy indoor environments, the following sustainable development principles will be considered;

- Volatile Organic Compounds levels in interior finishes and products.

- Products low in formaldehyde emission levels.

- Where practical, window openings to bedrooms and common areas for natural ventilation whilst complying with the BCA operability restrictions and acoustic constraints. Bedrooms and common areas restricted by stringent acoustic constraints may be fixed.

- Adaptive comfort control shall be investigated, allowing for internal set-points that adjust depending on outdoor environmental conditions, thus saving energy and better conditioning internal spaces for a fluid transition with the outdoor environment.

2.10 REDUCE THE ENVIRONMENTAL IMPACT FROM BUILDING MATERIALS THROUGH REDUCTION, RE-USE AND RECYCLING OF MATERIALS, RESOURCES AND BUILDING COMPONENTS

The production and use of building materials has placed pressure on natural resources as they are exploited by the production industry. Energy is used to extract, produce and transport building materials, which causes pollution and if poorly selected the material ends up as waste, to become landfill or incinerated. In minimising the use of these material, the following sustainable development principles will be considered;

- Timber and composite timber products used in the building and construction works sourced from either/or a combination of post-consumer re-used timber; or Forest Stewardship Council (FSC) certified Timber as appropriate for the project.

- PVC products or products containing PVC to meet the Best Practice Guidelines for PVC in the built environment.

- Thermal insulants and refrigerants to avoid the use of ozone-depleting substances in both manufacture and composition.

- Wall, ceiling, carpet and floor finishes, and adhesives and sealants to have low Volatile Organic Compounds emissions.
- Composite wood products used to have low formaldehyde emission levels (rated E0).
- Non-allergenic materials to be selected for furnishings.

2.11 IMPROVE THE BIODIVERSITY

Development has caused the displacement and degradation of flora & fauna within Sydney's unique natural landscape. Protecting and restoring the natural ecosystems will ensure the long term ecological sustainability of Sydney city. In retaining Sydney's unique natural landscape, the following sustainable development principles will be considered;

- Landscaping design to be low water use and predominately consist of native planting.
- Additional planting for street trees and new planting in residential gardens to encourage biodiversity.
- Rainwater with drip irrigation/moisture control to be used for landscape irrigation.
- Minimise pesticides, herbicides and chemical fertilisers.
- Suitable systems to be implemented to improve runoff water quality.
- Retain native vegetation areas of ecological importance to facilitate the safe movement of native fauna.

2.12 SUPPORT GREEN TRANSPORT

Due to Sydney's growing population, alternative transport options have been investigated to assist in reducing air pollution and road congestions, whilst promoting an active and healthy lifestyle. In relieving the pressure on Sydney's motor vehicle transport sector, the following sustainable development principles will be considered;

- Secure bicycle parking spaces nominated for residents in a central bicycle centre, and additional bicycle parking spaces nominated for visitors and retail staff to be distributed around the landscape.
- Nominate parking bays for car pool / car share, located adjacent to a public road and readily accessible by car share participants who are not residents of the development.
- Achieve a Walk Score of 98% (see Appendix A for further details).

2.13 DEVELOP ADAPTABLE BUILDINGS AND SPACES

The development has carefully allowed for community engagement in a broad range of outdoor activities in common areas to address the increasingly importance of Sydney's growing population. In addressing people's and community's longevity, the following sustainable development principles will be considered;

- Communal garden planting to common areas to provide solar access and encourage interaction / connection with the outdoors.
- Open landscaped areas to encourage active play.
- Sun-shaded areas from trees, buildings, pergolas or other sun-shading devices.
- Outdoor dining/seating areas and associated facilities.
- Barbeque facilities to communal areas.
- Connected, safe & secure, attractive, well-lit and efficient walking and cycling pathway spaces (including streets and open spaces) both internally and externally.

2.14 BUILD A SAFE AND DIVERSE COMMUNITY

Significant measures have been undertaken to ensure that this development minimises its impact upon the local environment and addresses environmental, social and economic sustainability aspects for the buildings' occupants, users and the wider community. Ensuring a positive community and providing people with a sense of identity, the following sustainable development principles will be considered;

- Integrated public spaces that will be highly activated by retail and outdoor seating and transitional spaces
- Achieve a Walk Score of 98% (see Appendix A for further details).
- Provide a community communication system (e.g. intranet, newsletter, community notice board).

2.15 INFORM THE END OWNER AND USER

To ensure the original design intentions and operational savings are delivered, the development will provide the end owner and user with a guide. This includes information relevant for the building's residents and management in regards to reducing greenhouse gas emissions, the monitoring & metering of energy and water consumption, local transport facilities & other sustainable development principles.