# Appendix K ESD Report

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# **1.0 Executive Summary**

This report has been prepared for The Powerhouse Ultimo Renewal project (Application Number SSD-32927319), in response to the SSDA General Requirement 9.0 – Ecologically Sustainable Development (ESD).

The report provides an overview of how the proposed design is responding to sustainable planning, through all stages of design, construction, and operation of the facility. Some of the key principles and guidelines that have helped develop the sustainability strategy for the development are as follows:

#### Principles:

- All aspects of the design, construction and ongoing operation of the precinct will seek opportunities to minimise negative environmental impacts.
- Triple bottom line approach to sustainability, which addresses environmental, economic, and social sustainability impacts
- Net Zero Operation and climate positive, low-carbon, high-performance precinct.

#### **Guidelines:**

- Prioritise climate positive, low-carbon, high-performance outcomes.
- Minimum 5 Star Green Star Buildings rating and aspiration to achieve 6 Star Green Star Buildings rating.
- Alignment with the following strategies, policies, frameworks and guidelines:
  - Pyrmont Peninsula Place Strategy.
  - NSW Government Resource Efficiency Policy.
  - o NSW Climate Change Policy Framework
  - National Carbon Offset Standards
  - NABERS and NCC.
  - o Sustainable Sydney 2030
- Integrate renewable energy generation.
- Minimise waste and reduce the precinct's water consumption.

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# 2.0 Introduction

This report has been prepared on behalf of the Department of Enterprise, Investment and Trade (Create NSW) to support a State Significant Development (SSD) Development Application (DA) for alterations and additions to Powerhouse Ultimo at 500 Harris Street, Ultimo.

The Powerhouse Ultimo Renewal is a transformative \$480-\$500 million investment by the NSW Government to establish a world-class museum that will significantly contribute to an important and developing part of Sydney. The renewal will see Powerhouse Ultimo deliver a programming focus on design and fashion, presenting exhibitions that showcase the Powerhouse Collection, international exclusive exhibitions and programs that support the design and fashion industries.

This project sets the vision for the renewal of Powerhouse Ultimo and the creation of the Creative Industries Precinct at Powerhouse Ultimo, with the detailed design, construction, and operation of the project to be sought at a separate and future stage (Stage 2).

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# 3.0 Process

The Powerhouse Ultimo Renewal project is for the purposes of an 'information and education facility' with a capital investment value of more than \$30 million, and such is classified as State Significant Development (SSD) pursuant to Section 13(1) of Schedule 1 of State Environmental Planning Policy (Planning Systems) 2021.

The delivery of the new Creative Industries Precinct for Powerhouse Ultimo will occur in stages, comprising the following:

- Stage 1 Concept DA establishing the planning, design, and assessment framework for the Powerhouse Ultimo Renewal Project including the indicative land uses, maximum building envelopes, general parameters for the future layout of the site, and strategies to guide the subsequent detailed design phases of the project including Urban Design Guidelines and Design Excellence Strategy.
- Architectural Design Competition A competitive design process to critically analyse and provide design alternatives for the Powerhouse Ultimo Renewal project in accordance with the planning and development framework established for the site under the Concept DA. A winning design will be selected by a jury of experts and will inform the subsequent detailed design and assessment phase (Stage 2) of the project.
- Stage 2 A Detailed DA confirming the ultimate architectural design and operation of Powerhouse Ultimo and assessing any associated planning and environmental impacts. This Detailed DA will seek consent for the detailed design, construction and operation of the proposed development and follows the same planning assessment and determination process as the Concept DA (Stage 1).

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# 4.0 Site Description

Powerhouse Ultimo is situated upon the lands of the Gadigal people of the Eora Nation. It is located within the City of Sydney Local Government Area and its primary address is 500 Harris Street, Ultimo.

The site contains two heritage-listed buildings, being the 'Ultimo Power House' (c.1899-1905) and the 'Former Ultimo Post Office including interior' (c.1901), both of which are listed on the State Heritage Register under the *Heritage Act* 1997.

Other buildings within the site include the former tram shed (Harwood Building) and the 1988 museum building fronting Harris Street (Wran Building). A café building has been constructed immediately to the south of the Power House at the northern end of the Ultimo Goods Line. Located at the corner of Harris Street and Macarthur Street is a forecourt that acts as the main public entrance to the site, but provides limited activation and is disconnected from higher-quality urban spaces including the Ultimo Goods Line.

The primary focus of the Powerhouse Ultimo Renewal project is the museum to the north of Macarthur Street and bounded by Harris Street, Pier Street and the light rail corridor. However, some enabling and minor decoupling works will occur within the broader Powerhouse Ultimo precinct.

No substantive works or changes in use are proposed to the Harwood Building located between Macarthur Street and Mary Ann Street.

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# 5.0 Overview of Proposed Development

This Concept DA sets the vision for the renewal of Powerhouse Ultimo and the creation of the Powerhouse Creative Industries Precinct, with the detailed design, construction, and operation of the project to be sought at a separate and future stage (Stage 2).

Concept approval is sought for the following:

- A maximum building envelope for any new buildings and alterations and additions to existing buildings retained on the site.
- Use of the new spaces and built form as an 'information and education facility' including exhibition, education, and back of house spaces, and a range of related and ancillary uses to contribute to the operation of Powerhouse Ultimo.
- Endorsement of Urban Design Guidelines and a Design Excellence Strategy to guide the detailed design of the future building, internal spaces, and public domain areas that will be the subject of a competitive design process and a separate and future DA (Stage 2).
- An updated Draft Conservation Management Plan to ensure that future development occurs in a manner that is compatible with, and facilitates the conservation of, the heritage values of the site.
- General functional parameters for the future design, construction, and operation of buildings and uses on the site including the principles and strategies for the management of transport and access, flooding, sustainability, heritage and the like.

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# 6.0 Assessment Requirements

The Department of Planning and Environment (DPE) has issued Secretary's Environmental Assessment Requirements (SEARs) to the applicant for the preparation of an Environmental Impact Statement (EIS) for the proposed development.

The ESD SEARs Report is required by the Secretary's Environmental Assessment Requirements (SEARs) for SSD-32927319. This table identifies the relevant SEARs requirement/s and corresponding reference/s within this report.

Table 1 - SEARs Requirement 9.0 and Relevant Reference

SEARs Items	Project Response / Where Addressed in Report
<ul> <li>A) Identify how ESD principles (as defined in clause 7(4) of Schedule 2 of the EP&amp;A Regulation) are incorporated in the design and ongoing operation of the development.</li> </ul>	The ESD initiatives proposed for the project aims to reduce the environmental impacts typically associated with buildings during the construction and ongoing operation of the building. The project utilises a resource hierarchy approach, with emphasis on avoiding, then reduction of energy, water, waste, materials etc. The outcome of the resource hierarchy approach is to ensure the project aligns with the ecological sustainable development principles of Clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000.
<ul> <li>B) Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards</li> </ul>	The project is to achieve a <b>minimum 5 Star Green Star Buildings Rating</b> and aspires to achieve a <b>6 Star Green Star Buildings Rating</b> . The strategies in response to this have been captured in Section 8.0.
C) Demonstrate how the development minimises greenhouse gas emissions (reflecting the Government's goal of net zero emissions by 2050) and consumption of energy, water (including water sensitive urban design) and material resources.	The conservations of energy, water and material resources are demonstrated in Section 8.0.

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# 6.1 Project Response to SEARS clause 7 (4)

The ESD initiatives proposed for the Powerhouse Ultimo Renewal project aim to reduce the environmental impacts typically associated with buildings during the construction and ongoing operation of the building. The project utilises a resource hierarchy approach, with emphasis on avoiding, then reducing the use of energy, water, materials etc.

The outcome of the resource hierarchy approach is to ensure the project aligns with the ecological sustainable development principles of Clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 and the four key principles listed below.

- The precautionary principle
  - If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
  - Decisions should be guided by :
     (i) Careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment;
     (ii) An assessment of the risk-weighted consequences of various options.
- Inter-Generational Equity

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- The present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.
- Conservation of Biological Diversity Ecological Integrity
  - Conservation of biological diversity and ecological integrity should be a fundamental consideration.
- Improved Valuation, Pricing and Incentive Mechanisms
  - Environmental factors should be included in the valuation of assets and services, such as:

(i) Those who generate pollution and waste should bear the cost of containment, avoidance, or abatement,

(ii) The users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) Environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

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# 7.0 ESD Policy & Benchmarks

The existing Powerhouse Museum in Ultimo has always achieved a high level of sustainability performance, with a dedicated sea water heat rejection system saving energy and water use. For the refurbishment and extension options for this project, further sustainability improvements are targeted for the existing building, along with best practice performance for all new elements.

In addition to the Secretary's Environmental Assessment Requirements (SEARs), the following environmental targets are aspired by this project:

- Exceed the requirements of Section-J of the National Construction Code (NCC) for energy-efficiency in building fabric and building services / systems.
- Align with Government Resource Efficiency Policy (GREP)
- Demonstrate good design through early-stage analysis and guidance, in general accordance with the best practice standards such as Green Star;
- Achieve a minimum 5 Star Green Star Buildings Rating and aspiration to achieve a 6 Star Green Star Buildings Rating.
- Implementation of a Net Zero Operational Plan
- Implementation of climate positive, low-carbon and high-performance precinct
- Alignment with Greater Sydney & City of Sydney Strategies and Targets
  - o Greater Sydney Commission East District Plan Priorities
  - o Sustainable Sydney 2030 goals
  - o 100% Renewable energy for government facilities
  - o Alignment with Decentralised Water and Energy master plans
  - o Sustainable Design Technical Guidance tool for government facilities
- Transition Plan to achieve zero carbon performance

# 7.1 NCC Section-J

For all **new building elements**, the facade and building services will be required to comply with the applicable NCC (2019 or 2022) Section J minimum standards. This will require the design of the building envelope, including walls, roof, glazing, floors, etc to achieve minimum thermal performance. Building services, including mechanical plant will be required to achieve minimum efficiency standards. NCC 2019 Section J compliance also forms the baseline for the energy and greenhouse gas emissions analysis for Green Star and GREP.

For the **existing building elements**, the requirements to upgrade the facade will depend on various factors, including:

- Heritage considerations
- Extent of work planned for refurb elements
- Change of use for certain areas
- Input from planning authorities

Therefore, where possible, the building fabric will be improved to reduce heating and cooling consumption of the refurbishment, but preservation of the heritage features will likely take precedence over thermal performance.

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## 7.2 100% Renewable Energy

The Powerhouse and future development within the site can purchase 100% Green Power through the whole of government energy contract. With the strategy to fully electrify the development and remove all fossil fuels (such as gas for heating and hot water), this will enable a zero carbon site for operational energy use.

## 7.3 Decentralised Water Network Connection

The City of Sydney is currently planning to have a recycled water network that will run from Circular Quay to Central Station. Given the proximity of the Powerhouse Museum site to the network, there will be opportunity in the future to create a connection, enabling all water consumption for toilet flushing and irrigation to come from non-potable sources. This option is not considered at this stage, given the Recycled Water network has not yet been completed. Therefore, onsite water treatment and re-use is considered for the development for the short to medium term. Provision could be included at a later stage to enable connection to a future recycled water network. A plan of the proposed network route is shown below:



# 7.4 NSW Government Resource Efficiency Policy (GREP)

The GREP aims to reduce the operating costs of NSW Government agencies and ensure that they provide leadership in resource productivity. The GREP requires agencies to:

- Incorporate resource-efficiency considerations in all major decisions
- Focus on the challenge posed by rising costs for energy, water, clean air and waste management
- Seek to leverage their purchasing power when procuring resource-efficient technology and services
- Publish annual statements of their performance against the policy.

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#### **GREP** Requirements and Associated Strategies & Targets

Category	Requirements	Key Targets / Strategies
-/ T Energy	E1: Existing - 10% improvement of energy usage by 2023 (2012 base) E2: Existing - 5 Star NABERS Energy (offices) E3: Efficient Appliances & Equipment E4: New Built & Refurb - NABERS 5 Star / Green Star 5 Star / EV Infrastructure . E5 – PV installation E6: 10% Electric or Hybrid vehicle fleet E7: Purchase 6% GreenPower (already doing)	<ul> <li>High performance Building Fabric (likely NCC 2019 compliance will be sufficient)</li> <li>Achievement of NABERS for office elements - 5 Star Energy performance is achievable</li> <li>Enhanced metering of energy may be required to demonstrate performance of different zones within the development, including separation of office elements to demonstrate NABERS compliance</li> <li>Rooftop PV</li> <li>EV charging infrastructure for car parking and/or provision for Powerhouse fleet vehicles</li> <li>Efficient equipment - operational policy required to ensure minimum efficiency standards achieved - this is standard practice</li> <li>6% Green Power (existing commitment already in place)</li> </ul>
Water	W1: Report on water use W2: Minimum water standards for office buildings - NABERS Water rating of 4 Stars W3: Minimum standards for new water-using appliances - 0.5 Stars above average WELS rating	<ul> <li>Efficient fixtures, fittings, and appliances - operational policy required to ensure minimum efficiency standards achieved – this is fairly standard practice</li> </ul>
Waste	P1: Report on top three waste streams – Comply with Contract 9698	<ul> <li>Will require auditing of waste</li> </ul>
Clean Air	A1: Air emission standards for mobile non- road diesel plant and equipment A2: Low-VOC materials – Achieve Property NSW Guidance and Green Star requirements	<ul> <li>Low VOC materials - small cost increase but this is quite standard practice now</li> </ul>

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# 8.0 Sustainability Approach

Sustainable building design involves a holistic and integrated design approach, which builds on an increased awareness of site opportunities, form, and function, to encompass and target a broad range of sustainable design initiatives.

The project will endeavour to demonstrate, through all aspects of design, a strong commitment to sustainability. It will adhere to the following key sustainable design initiatives:

- Healthy (Indoor air quality & access to natural daylight)
- Comfortable (Thermal Visual and Acoustic Comfort)
- Efficient (Energy, Material & Water)
- Easy to maintain and operate
- Environmentally responsive (To changing climatic conditions)

- Correctly commissioned (System optimisation / Ensure building performance)
- Be a teaching tool
- Safe and secure: for staff and visitors

(Showcase the

buildings

sustainable

attributes)

- A community resource
- Be of stimulating architecture (Invoke a sense of pride, preserving heritage qualities)









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In expanding on some of those initiatives outlined previously:

**The promotion of quality natural daylight** – There is a direct correlation between access to daylight and staff attention, productivity, and general staff and visitor wellbeing.

**Excellent Indoor Air Quality (IAQ)** – In a similar manner to daylight, there is proven correlation between staff performance, occupant wellbeing and staff retention with indoor air quality. Principle strategies include:

- Increased levels of outside air through the promotion of mixed mode or natural ventilation strategies, and increased outdoor air allowances;
- Mould prevention through the avoidance of thermal bridges, condensation and effective strategies in ventilation, odour and pollution control;
- Low pollutant emitting materials selections such as low VOC paints, adhesives, sealants, composite woods etc.

Excellent Thermal, Visual and Acoustic comfort - To address:

- Thermal comfort: To ensure visitors and staff do not experience extremes in temperature as they visit, learn, perform and work;
- Visual comfort: To ensure the quality of light is supportive of specific tasks. In design for natural daylight, consideration must be given to daylight uniformity, penetration depth, solar heat ingress and glare control;
- Acoustic comfort: To ensure effective communication can always be achieved, noise from ventilation systems, external and internal disruptive noise is minimised.

**Resource conservation (energy, water and waste)** – In delivering on the functional demands of presentation and creative space (high levels of daylight, thermal comfort, visual comfort, and IAQ), incurs resource use through the optimisation of these attributes. These are to be supported with minimal consumption of energy and water resources, or the generation of waste and pollution in demolition, construction and operation of the building. Our approach to resource conservation is based on applying a "hierarchy" methodology as outlined in section 8.2.

**The creation of an integrated community resource** – The presentation and creative spaces with accompanying amenities, can play a role within the local community through the use of shared facilities.

The above approach has been taken to ensure the ESD strategies proposed meet the SEARs and targets/benchmarks discussed in the previous section.

The following sections provide a high-level overview of some of the strategies being considered.

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## 8.1 Site & Building Strategy Considerations

The diagram below illustrates site-specific considerations and opportunities being discussed both at site/infrastructure level and at building level (both existing refurbishment and new build elements).



Summary of ESD Considerations

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## 8.2 Resource Conservation – Energy

The proposed approach to sustainability and energy related systems is based on applying an "energy hierarchy" methodology.

This methodology has the reduction of energy use as its priority, and then seeks to meet the remaining energy demand by the most efficient means available, before the inclusion of on-site generation and importation of green power.



The following energy initiatives have been proposed and their individual merits will be assessed further during future design stages:

#### **Passive Design Optimisation**

- Façade performance WWR / U-Values of windows and walls / glazing performance (SHGC & VLT)
- Building Form Massing of new building has been designed with consideration of façade access for greater access to natural daylight and opportunity for natural ventilation, within the constraints of the site.
- Building envelope performance (airtightness and thermal) will be enhanced by prefabrication where possible. Opportunities for upgrading of existing museum fabric will also be assessed against heritage constraints.
- A Mixed Mode Ventilation strategy will be assessed for improved indoor air quality, whilst also reducing energy consumption associated with air-conditioning. When external and internal conditions are favourable, external windows to each building / space can open to facilitate natural ventilation.
- Building energy performance improvement Energy modelling will be performed in development of a design that betters current minimum standards.
- Performance glazing Clazing should be selected to optimise performance, admitting as much daylight as possible, while controlling the transmission of solar heat and thermal conduction
- Clazing ratio Clazing ratios need to achieve an equilibrium between allowing daylight to enter buildings while reducing solar and conductive heat gains

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- Clazing position Windows should be positioned to block unwanted solar radiation, while allowing visible light and possibility for natural ventilation
- External Shading Helps restrict unwanted heat gains within spaces, while allowing daylight access. Deciduous trees can also help shade direct solar ingress
- Building air tightness Doors should be designed to close automatically to reduce unwanted heat transfer during peak summer and winter conditions. Consider revolving doors where applicable to maintain air tightness
- Thermal Mass Exposed thermal mass can reduce the rate of change of temperatures within buildings and reduce the peak heating and cooling demands

#### Active Measures / District Systems

- Seawater heat rejection system is highly efficient and reduces energy and water consumption.
- Full Electric development, utilising efficient heat pumps for heating and hot water supply
- Energy efficient LED lighting, zoning, controls, and site co-ordination for both internal and external lighting systems are to be designed.
- Occupancy controls will be provided to spaces so that AV, lighting, and mechanical systems can be shut down both manually and automatically when unoccupied where appropriate.
- High efficiency HVAC (Heating, Ventilation & Air-conditioning) systems to be incorporated
- Energy Recovery: Through both air and water-based systems, energy recovery and reuse will be a priority
- **CO2 monitoring** in the appropriate control of outdoor air provisions.
- Metering and Monitoring of energy, water, and air quality to promote healthy environment and save energy and resources.
- Building Management Systems to link to sensors and meters, with the ability to control lighting, hydraulic and mechanical systems and reduce energy usage.
- Comprehensive System Commissioning to ensure the building functions as designed.

#### **Renewable Energy**

- A Solar photovoltaic (PV) array can be located on rooftops where in alignment with the CMP. Energy generated onsite can be reused onsite.
- Full Electric development, removing fossil fuel consumption onsite and purchasing off-site Green Power, enabling carbon positive operational energy.
- Investigate other onsite renewable energy and storage opportunities.

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## 8.3 Resource Conservation – Water

The following hierarchy and strategies will be applied:



The following water initiatives have been proposed and their individual merits will be assessed further during future design stages:

- Water efficient fixtures / fittings will be specified. These include fittings such as taps, showerheads, toilets, zip taps, dishwashers etc certified under the WELL rating scheme.
- Sensors within water networks to identify possible leaks and act quickly to reduce losses
- Rainwater Reuse Rainwater collection and reuse systems will be accessed. Reuse options include landscape irrigation and toilet flushing
- Sea water heat rejection large reduction in potable water use and already existing
- No cooling tower or cooling tower water use reduction strategies
- Fire Systems test water capture and storage for re-use using the rainwater tank will be accessed
- Drip and demand-controlled irrigation to optimise irrigation supply

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## 8.4 Resource Conservation – Materials and Waste

Selection of environmentally preferable materials is a key priority for the project because building materials consume energy and natural resources during its manufacture and for their transportation to the construction site. Choices of materials and construction methods can significantly change the amount of energy embodied in the structure of a building.



Low-impact construction methods such as offsite prefabrication/preassembly shall be applied where applicable. Prefabricated structures built in purpose-built factories are less labour intensive, more time efficient, and produce less waste compared to traditional onsite construction methods. Raw materials and construction elements are not exposed to the elements, which ensures high quality in the final building, and the construction process is less weather dependant.

Preference will be given to materials that contain high-recycled content and/or are highly recyclable. The following materials strategies have been proposed and their individual merits will be assessed further during future design stages:

- Use sustainable timber Timber products used for concrete formwork, structure, wall linings, flooring and joinery will be sourced where possible from reused, post-consumer recycled or FSC-certified, or PEFC certified timber.
- Cross Laminated Timber (CLT) CLT to be considered where feasible
- Steel will be specified to meet specific strength grades, energy-reducing manufacturing technologies, and off-site fabrication. Steel will also be sourced with a proportion of the fabricated structural steelwork via a steel contractor accredited by the Environmental Sustainability Charter of the Australian Steel Institute.

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- Recycled concrete The project aims to reduce the use of Portland cement through substitutions. Fine and coarse aggregate inputs are to be sourced from manufactured sand or other alternative materials, and the amount of Portland cement will be reduced within the concrete mix.
- High recycled content or recyclability Furniture items with high recycled or recyclability content to be considered.
- Site waste management plan. During the demolition and construction phase, a project-specific site waste management plan (WMP) will be developed and implemented, for recycling of demolition and construction waste.

# 8.5 Health and Wellbeing

#### Indoor Environmental Quality

The following occupant comfort strategies have been proposed design for the project.



- Indoor Air Quality-Increase levels of fresh outdoor air above AS1668 should be provided.
- Daylight The façade glazing should provide high levels of natural light (where applicable some areas such as presentation spaces may need to limit daylight access). Where appropriate, the design should seek to maximise daylighting and reduce the reliance on artificial lighting, while controlling for unwanted solar heat gains. External shading and Internal blinds could be provided to manage instances of glare.
- External views should be provided to give views of nature, which help to improve attention span and wellbeing of staff (where appropriate).
- Clare should be reduced using fixed shading devices, window tinting or operable devices such as shades or blinds to all external or perimeter windows and glazing.
- Thermal comfort should be a key focus of naturally (mixed mode spaces) and mechanically ventilated spaces.
- Building noise Both internal and external noise sources and levels should be considered and controlled in accordance with AS/NZS 2107.

# 8.6 Site & Environment

Proposed design aims to protect the project site and ensure the reduction of potential emissions, including air pollutants, watercourse pollutants, light pollution, refrigerant leakage, etc.

The following initiatives are being considered to preserve site quality and reduce pollution:

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- Stormwater Reduction Manage the impacts of stormwater run-off from the development to protect and improve waterway health by replicating the natural water cycle. This would include measures to prevent stormwater contamination, control sedimentation and erosion during construction and operation of the building, such as rainwater reuse etc.
- Biodiversity Enhancement Landscape strategy and incorporation of greenery within the development to support an improvement in the ecological value of the site.
- Pollution of the night sky should be minimised by ensuring that the electric lighting within the site should not cause any direct beam of light into the night sky. Light pollution can disturb the habitat of migratory birds and impacts the behaviour of nocturnal animals in the site vicinity.
- Emissions from HVAC refrigerants and insulation products have the capacity to damage the ozone layer. For the proposed design, refrigerants with zero ODP and Low GWP should be specified and installed within all the proposed HVAC systems.
- Construction Environmental Management Plan (EMP) An CEMP will be developed. This measure is intended to reduce the environmental impacts associated with the construction of new buildings. The CEMP will be developed and implemented for the construction stage, including demolition and excavation, to address environmental, worker health and safety and community risks. The CEMP is a project specific plan and developed using State and Federal Guidelines and standards. The main contractor will implement an Environmental Management System certified to the ISO 14001 standard to ensure the objectives of the CEMP are met.

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## 8.7 Green Star Buildings Rating

The project is to achieve a **minimum 5 Star Green Star Buildings Rating and aspires to achieve a 6 Star Green Star Buildings Rating**. This is defined by Green Star as the following:

"A 6 Star rated building showcases World Leadership. It has been built to be highly efficient building fully powered by renewables that addresses a significant number of environmental and social issues and contributes to the community".

The Green Building Council of Australia (GBCA) introduced its new Green Star Buildings (v1) tool in October 2020. Subsequently, the old tool Green Star Design & As-Built (DAB) v1.3 was retired in December 2021. The new tool represents a major overhaul of the old tool with the aim to:

- Deliver a new definition of a sustainable building
- Meet the Paris Agreement
- Respond to sustainability megatrends
- Create clear expectations for new buildings
- Develop opportunities for supply chain transformation

There are eight categories representing the issues that will define the next decade of the built environment (see below). In targeting a formal Green Star rating, the project is committed to working towards these.

There are eight categories representing the issues that will define the next decade of the built environment.



Responsible

Recognises activities that ensure the building is designed, procured, built and handed over in a responsible manner.



Healthy

People

community

Encourages solutions that

address the social health of the

Promotes actions and solutions that improve the physical and mental health of occupants.



Resilient

Encourages solutions that address the capacity of the building to bounce back from short-term shocks and long-term stresses.



Nature

Encourages active connections between people and nature and rewards creating biodiverse green spaces in cities.



Positive

Encourages a positive contribution to key environmental issues of carbon, water and the impact of materials.



Leadership

Recognises projects that set a strategic direction, build a vision for industry or enhance the industry's capacity to innovate.

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Places

Supports the creation of safe, enjoyable, integrated and comfortable places.

#### Climate Positive Pathway

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Green Star Buildings aims to drive all buildings towards net zero whole life carbon by considering both operational and embodied carbon emissions. The new Climate Positive Pathway is prepared with the goal to ensure all new buildings in Australia are net zero carbon in operations by 2030.

As illustrated below, the Climate Positive Pathway is contained within four credits and is worth 15 points.

Credits	Criteria	2020*	2023*	2026*	2030**
_	Renewable electricity	6 star	5 star	All registrations	All certifications
Energy source	Renewable energy	6 star	5 star	All registrations	All certifications
	10% reduction	All ratings			All certifications
Energy use Reductions over typical	20% reduction	6 star	5 star	All registrations	All certifications
building	30% reduction				
	10% reduction	All registrations			All certifications
Upfront carbon emissions Reductions over a typical	20% reduction	6 star	5 star	All registrations	All certifications
building	40% reduction			6 star	All certifications
	Scope 1 eliminated or offset (refrigerants and fossil fuels)	6 star	5 star	All registrations	All certifications
Other carbon emissions	All remaining emissions offset (embodied carbon and other under control)		6 star	5 star	All certifications

Denotes year of registration

\*\* Denotes year of completion

Under this pathway, depending on the dates of registration and certification, the projects will be required to meet increasingly stringent credit requirements. For 6 Star Buildings, the project must comply with all aspects of the Climate Positive Pathway.

#### Green Star Pre-Assessment 8.8

The project is to achieve a minimum 5 Star Green Star Buildings rating and aspires to achieve a 6 Star Green Star Buildings Rating. To achieve this, the project must achieve all Minimum Expectation credits, comply with the Climate Positive Pathway and score a minimum of 70 points (+5 points buffer). The following table shows a route to 5 Star and 6 Stars.

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#### Summary of Green Star points.

Categorie s	Points Available	4 Stars + Buffer	5 Stars + Buffer	6 Stars + Buffer (Aspiration)	Total Points Targeted
Responsible	17	4	0	7	11
Healthy	14	5	3	2	10
Resilient	8	4	1	3	8
Positive	30	3	14	7	24
Places	8	1	0	8	9
People	9	3	2	3	8
Nature	14	0	0	6	6
Leadership	5	0	0	1	1
Total	100	20	20	37	77

## Green Star - Target Score Summary



Appendix A provides a Green Star Scorecard outlining the proposed route to achieve 5 Star and possible 6 Star Green Star rating.

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# **9.0 Mitigation Measures**

Based on the findings and recommendations of this report, the following measures are suggested to mitigate the identified impacts of the proposed works.

#### 1. Mitigation Measure

#### 2. Indicative Timing

Agree and confirm key sustainability strategies and targets for both existing and new facilities.

Coordinate with relevant stakeholders and design and contractor teams to embed sustainability initiatives into relevant design, specifications, and operational documentation. At the detailed Stage 2 SSDA stage

At the detailed Stage 2 SSDA stage and beyond.

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# 10.0 Appendix A – Green Star Pre-Assessment

	Summary		Categories	Points Available	4 Stars + Buffer	5 Stars + Buffer	6 Stars + Buffer (Aspiratio n)	Total Points Targeted	
	Registering from		Responsible	17	4	0	7	11	
	Net zero carbon in operations targeted	No	Healthy	14	5	3	2	10	G
ME	Minimum expectations (ME) met	YES	Resilient	8	4	1	3	8	
CA	Credit Achievement (CA) points targeted	67	Positive	30	3	14	7	24	
EP	Exceptional Performance (EP) points targeted	10	Places	8	1	0	8	9	
	Targeted Green Star rating	6 Star	People	9	3	2	3	8	Proied
	Core points targeted	76	Nature	14	0	0	6	6	
	Leadership points targeted	1	Leadership	5	0	0	1	1	
	Total points targeted	77	Total	100	20	20	37	77	

Green Star - Target Score Summary

Green Star Ratings	Minimum Expectations	No Rating	4 Stars	5 Stars	6 Stars	
act Targeted Doints	Minimum	4 Stars	5 Stars	6 Stars		
	Expectations	4 Stars	5 50015	0 Stars		
-3	30 -10	10	30	50 7	70 90	

Category	Credit	Credit No.	ME / CA / EP	Points Available	4 Star Points	5 Star Points	6 Star Points (Aspiratio n)	Total Points Targeted	Outcome	Criteria
Responsible	Industry Development	1	CA	1	1	0		1	The development facilitates industry transformation through partnership, collaboration, and data sharing.	<ul> <li>The building owner or developer appoints a Green Star Accredited Professional.</li> <li>The building owner or developer discloses the cost of sustainable building practices to the GBCA.</li> <li>The building owner or developer markets the building's sustainability achievements.</li> </ul>
Responsible	Responsible Construction	2.1	ME	-	ME	0		ME	The builder's construction practices reduce impacts and promote opportunities for improved environmental and social outcomes.	The builder or head contractor has an environmental management system in place to manage its environmental impacts on site.     The builder or head contractor has an environmental management plan to cover the scope of construction activities.     The builder diverts at least 80% of construction and demolition waste from landfill.     The head contractor provides training on the sustainability targets of the building.
Responsible	Responsible Construction	2.2	CA	1	1	0		1	The builder's construction practices reduce impacts and promote opportunities for improved environmental and social outcomes.	In addition to the Minimum Expectation: • 90% of construction and demolition waste is diverted from landfill, and waste contractors and facilities comply with the Green Star Construction and Demolition Waste Reporting Criteria .
Responsible	Verification and Handover	3.1	ME	-	ME	0		ME	The building has been optimised and handed over to deliver a high level of performance in operation.	The building is set up for optimum ongoing management due to its appropriate metering and monitoring systems.     The building has set environmental performance targets, designed and tested for airtightness, been     commissioned, and will be tuned.     The project team create and deliver operations and maintenance information to the facilities management team at     the time of handover. Information is available to building users on how to best use the building.
Responsible	Verification and Handover	3.2	CA	1	1	0		1	The building has been optimised and handed over to deliver a high level of performance in operation.	In addition to the Minimum Expectation: • An independent level of verification is provided to the commissioning and tuning activities through the involvement of an independent commissioning agent. <b>Or</b> • The project uses a soft landings approach that involves the future facilities management team. <b>For large projects, both must occur.</b>
Responsible	Responsible Resource Management	4	ME	-	ME	0		ME	Operational waste can be separated and recovered in a safe and efficient manner.	<ul> <li>The building is designed for the collection of separate waste streams.</li> <li>The building provides a dedicated and adequately sized waste storage area.</li> <li>The building ensures safe and efficient access to waste storage areas for both occupants and waste collection contractors.</li> </ul>
Responsible	Responsible Procurement	5	CA	1	0	0	1	1	The procurement process for key products, materials, and services for the building's design and construction follows best practice environmental and social principles.	The building's design and construction procurement processes follow ISO 20400 Sustainable Procurement – Guidance.     At least one identified supply chain risk and opportunity is addressed.
Respons	Responsible Structure	6.1	CA	3	0	0	3	3	The building's structure is comprised of responsibly manufactured products.	• 50% of all structural components (by cost) meet a Responsible Products Value of at least 10.

Credit Credit	Credit No.	ME / CA / EP	Points Available	4 Star Points	5 Star Points	6 Star Points (Aspiratio n)	Total Points Targeted	Outcome	Criteria
eigesoodsee	6.2	EP	2	0	0		0	The building's structure is comprised of responsibly manufactured products.	In addition to the Credit Achievement: • 10% of all products in the structure (by cost) meet a Responsible Products Value of at least 15. or • 30% of all products in the structure (by cost) have an average Responsible Products Value of at least 12.
Responsible Envelope	7.1	CA	2	0	0	2	2	The building's envelope is comprised of responsibly manufactured products.	<ul> <li>30% of all building envelope components (by cost) meet a Responsible Products Value of at least 10.</li> </ul>
eggisuod Responsible Envelope	7.2	EP	2	0	0		0	The building's envelope is comprised of responsibly manufactured products.	In addition to the Credit Achievement: • 10% of all products in building envelope (by cost) meet a Responsible Products Value of at least 15. or • 25% of all products in the building envelope (by cost) have an average Responsible Products Value of at least 12.
Responsible Systems	8.1	CA	1	0	0	1	1	The building's mechanical, hydraulic, transportation and electrical systems are comprised of responsibly manufactured products.	<ul> <li>20% of all active building systems (by cost) meet a Responsible Products Value of at least 6.</li> </ul>
Responsible Systems	8.2	EP	1	0	0		0	The building's mechanical, hydraulic, transportation and electrical systems are comprised of responsibly manufactured products.	In addition to the Credit Achievement: • 5% of all active building systems (by cost) meet a Responsible Products Value of at least 11. <b>or</b> • 15% of all active building systems (by cost) have an average Responsible Products Value of at least 8.
Responsible Finishes	9.1	CA	1	1	0		1	The building's internal finishes are comprised of responsibly manufactured products.	40% of all internal building finishes (by cost) meet a Responsible Products Value of at least 7.
Responsible Finishes	9.2	EP	1	0	0		0	The building's internal finishes are comprised of responsibly manufactured products.	In addition to the Credit Achievement: • 10% of all internal building finishes (by cost) meet a Responsible Products Value of at least 12. <b>or</b> • 20% of all internal building finishes (by cost) have an average Responsible Products Value of at least 9.
Clean Air	10.1	ME	-	ME	0		ME	Pollutants entering the building are minimised, and a high level of fresh air is provided to ensure levels of indoor pollutants are maintained at acceptable levels.	Levels of indoor pollutants are maintained at acceptable levels.     A high level of fresh air is provided.     Pollutants entering the building are minimised.
Clean Air	10.2	СА	2	0	0		0	Pollutants entering the building are minimised, and a high level of fresh air is provided to ensure levels of indoor pollutants are maintained at acceptable levels.	In addition to the Minimum Expectation: • The building's ventilation systems allow for easy maintenance. • High levels of outdoor air are provided. (100% above AS1668)
Light Quality	11.1	ME	-	ME	0		ME	The building provides good daylight and its lighting is of high quality.	Lighting within the building meets minimum comfort requirements.     Good lighting levels suitable for the typical tasks in each space are     available.     The building provides adequate levels of daylight.
Light Quality	11.2	CA	2	2	0		2	The building provides good daylight and its lighting is of high quality.	In addition to the Minimum Expectation: • The building provides best practice artificial lighting. <b>or</b> • The building provides best practice access to daylight.
Light Quality	11.3	EP	2	0	0		0	The building provides good daylight and its lighting is of high quality.	In conjunction with the Credit Achievement: • The building provides best practice artificial lighting. • The building provides best practice access to daylight.
Acoustic Comfort	12.1	ME	-	ME	0		ME	The building provides acoustic comfort for building occupants.	<ul> <li>An Acoustic Comfort Strategy is prepared to describe how the building and acoustic design aims to deliver acoustic comfort to the building occupants.</li> </ul>

Category	Credit	Credit No.	ME / CA / EP	Points Available	4 Star Points	5 Star Points	6 Star Points (Aspiratio n)	Total Points Targeted	Outcome	Criteria
Healthy	Acoustic Comfort	12.2	CA	2	2	0		2	The building provides acoustic comfort for building occupants.	In addition to the Minimum Expectation: • The building achieves maximum internal noise levels. <b>and/or</b> • The building achieves minimum internal noise levels. <b>and/or</b> • The building provides acoustic separation. <b>and/or</b> • The building minimises impact noise transfer. <b>and/or</b> • The building is designed with reverberation control.
Healthy	Exposure to Toxins	13.1	ME	-	ME	0		ME	The building's occupants are not directly exposed to toxins in the spaces they spend time in.	<ul> <li>The building's paints adhesives, sealants, and carpets are low in TVOC or non-toxic.</li> <li>The building's engineered wood products are low in TVOC or non-toxic.</li> <li>Occupants are not exposed to banned or highly toxic materials in the building.</li> </ul>
Healthy	Exposure to Toxins	13.2	CA	2	0	2		2	The building's occupants are not directly exposed to toxins in the spaces they spend time in.	In addition to the Minimum Expectation: • On-site tests verify the building has low Volatile Organic Compounds (VOC) and formaldehyde levels.
Healthy	Amenity and Comfort	14	CA	2	0	0	2	2	The building provides internal amenities that improve occupant experience of using the building.	The building has dedicated amenity room, or an exercise room.
Healthy	Connection to Nature	15.1	CA	1	1	0		1	The building fosters connection to nature for building occupants.	The building provides views.     The building includes indoor plants and incorporates nature-inspired design.     or
Healthy	Connection to Nature	15.2	EP	1	0	1		1	The building fosters connection to nature for building occupants.	In conjunction with the Credit Achievement: • The building provides views. • The building includes indoor plants and incorporates nature-inspired design. • 5% of the building's floor area/ or site area (whichever is greater) is allocated to nature in which occupants can directly engage with.
Resilient	Climate Change Resilience	16.1	ME	-	ME	0		ME	The building has been built to respond to the direct and indirect impacts of climate change.	<ul> <li>The project team completes the climate change pre-screening checklist. The project team communicates the building's exposure to climate change risks to the applicant.</li> </ul>
Resilient	Climate Change Resilience	16.2	CA	1	1	0		1	The building has been built to respond to the direct and indirect impacts of climate change.	In addition to the Minimum Expectation: • The project team develops a project-specific climate change risk and adaptation assessment for the building. • Extreme and high risks are addressed.
Resilient	Operations Resilience	17	CA	2	2	0		2	The building can respond to acute shocks and chronic stresses that can affect its operations over time.	<ul> <li>The project team undertakes a comprehensive review of the acute shocks and chronic stresses likely to influence future building operations.</li> <li>The building's design and future operational plan addresses any high or extreme system-level interdependency risks.</li> <li>The building's design maintains a level of survivability and design purpose in a blackout.</li> </ul>
Resilient	Community Resilience	18	CA	1	0	1		1	The building contributes to improving the resilience of the community.	<ul> <li>The project team undertakes a needs analysis of the community, identifies shocks and stresses that impact the building's ability to service the community, and develops responses to manage these.</li> </ul>
Resilient	Heat Resilience	19	CA	1	1	0		1	The building reduces its impact on heat island effect.	At least 75% of the whole site area comprises of one or a combination of strategies that reduce the heat island effect.
Resilient	Grid Resilience	20	CA	3	0	0	3	3	The building contributes to the functioning of the grid as it transitions to a higher level of renewable energy capacity.	The building provides active generation and storage systems.     and/or     The building has the infrastructure to deliver an appropriate demand response strategy.     and/or     The building has reduced its electricity consumption through passive design.
Positive	Upfront Carbon Emissions	21.1	ME	-	ME	0		ME	The building's upfront carbon emissions from materials and products have been reduced and offset.	The building's upfront carbon emissions are at least 10% less than those of a reference building.

Category	, Credit	Credit No.	ME / CA / EP	Points Available	4 Star Points	5 Star Points	6 Star Points (Aspiratio n)	Total Points Targeted	Outcome	Criteria
Positive	Upfront Carbon Emissions	21.2	CA	3	3	0		3	The building's upfront carbon emissions from materials and products have been reduced and offset.	<ul> <li>Climate Positive Pathway –</li> <li>In conjunction with the Minimum Expectation:</li> <li>The building's upfront carbon emissions are at least 20% less than those of a reference building.</li> <li>Demolition works are offset.</li> </ul>
Positive	Upfront Carbon Emissions	21.3	EP	3	0	0	3	3	The building's upfront carbon emissions from materials and products have been reduced and offset.	In conjunction with the Credit Achievement: • The building's upfront carbon emissions are at least 40% less than those of a reference building.
Positive	Energy Use	22.1	ME	-	ME	0		ME	The building has low energy consumption.	Reference Building Pathway • The building's energy use is at least 10% less than a reference building. NABERS Commitment Agreement Pathway • The building's energy use is modelled to perform at a specified minimum NABERS star rating (by building class).
Positive	Energy Use	22.2	CA	3	0	3		3	The building has low energy consumption.	Reference Building Pathway           - Climate Positive Pathway -           In conjunction with the Minimum Expectation:           • The building's energy use is at least 20% less than a reference building.           • MABERS Commitment Agreement Pathway           - Climate Positive Pathway -           In conjunction with the Minimum Expectation:           • The building's energy use is modelled to perform at a specified NABERS star rating (by building class).
Positive	Energy Use	22.3	EP	3	0	0		0	The building has low energy consumption.	Reference Building Pathway In conjunction with the Credit Achievement: • The building's energy use is at least 30% less than a reference building. NABERS Commitment Agreement Pathway In conjunction with the Credit Achievement: • The building's energy use is modelled to perform at a specified NABERS star rating (by building class).
Positive	Energy Source	23.1	ME	-	ME	0		ME	The building's energy comes from renewables.	The building provides a Zero Carbon Action Plan
Positive	Energy Source	23.2	CA	3	0	3		3	The building's energy comes from renewables.	In conjunction with the Minimum Expectation: • 100% of the building's <b>electricity</b> comes from renewable electricity.
Positive	Energy Source	23.3	EP	3	0	3		3	The building's energy comes from renewables.	Climate Positive Pathway - In conjunction with the Credit Achievement:     100% of the building's energy comes from renewables
Positive	Other Carbon Emissions	24.1	CA	2	0	0	2	2	The building's emissions from refrigerants, upfront carbon, and remaining carbon sources are eliminated or offset.	- Climate Positive Pathway -     - The building owner <u>eliminates</u> emissions from refrigerants.     or     - The building owner <u>offsets</u> emissions from refrigerants
Positive	Other Carbon Emissions	24.2	EP	2	0	0	2	2	The building's emissions from refrigerants, upfront carbon, and remaining carbon sources are eliminated or offset.	In addition to the Credit Achievement: • All other emissions not captured in the Positive category are eliminated or offset.
Positive	Water Use	25.1	ME	-	ME	0		ME	The building has low water use.	<ul> <li>The building installs efficient water fixtures. or</li> <li>The building uses 15% (10% for Class 2 and Class 3 buildings) less potable water compared to a reference building.</li> </ul>
Positive	Water Use	25.2	СА	3	0	3		3	The building has low water use.	In conjunction with the Minimum Expectation: • The building uses 45% (40% for Class 2 and Class 3 buildings) less potable water compared to a reference building. • The building has infrastructure for recycled water connection
Positive	Water Use	25.3	EP	3	0	0		0	The building has low water use.	In conjunction with the Credit Achievement: • The building uses 75% (60% for Class 2 and Class 3 buildings) less potable water compared to a reference building.
Positive	Life Cycle Impacts	26	CA	2	0	2		2	The building has lower environmental impacts from resource use over its lifespan than a typical building.	The project demonstrates a 30% reduction in life cycle impacts when compared to standard practice.

Credit Credit	Credit No.	ME / CA / EP	Points Available	4 Star Points	5 Star Points	6 Star Points (Aspiratio n)	Total Points Targeted	Outcome	Criteria
Movement and Place	27.1	ME	-	ME	0		ME	The building's design and location encourage occupants and visitors to use active, low carbon, and public transport options instead of private vehicles	<ul> <li>The building includes showers and changing facilities for building occupants.</li> <li>The facilities are accessible, inclusive, and located in a safe and protected space.</li> </ul>
See Movement and Place	27.2	CA	3	0	0	3	3	The building's design and location encourage occupants and visitors to use active, low carbon, and public transport options instead of private vehicles	In addition to the Minimum Expectation: • The building's access prioritises cycling and includes bicycle parking facilities. • A Sustainable Transport Plan has been prepared and implemented. • The building has EV charging capabilities. • Transport options that reduce the need for private fossil fuel powered vehicles are prioritised. • The building's design and location encourage walking.
Enjoyable Places	28	CA	2	0	0	2	2	The building provides places that are enjoyable and inclusive.	<ul> <li>The building delivers memorable, beautiful, vibrant communal or public places where people want to gather and participate in the community.</li> <li>The spaces are inclusive, safe, flexible, and enjoyable.</li> </ul>
Contribution to Place	29	CA	2	0	0	2	2	The building's design makes a positive contribution to the quality of the public environment.	<ul> <li>The building's design contributes to the liveability of the wider urban context and enhances the public realm.</li> <li>Independent reviews are held during the development of the design.</li> </ul>
Culture, Heritage and Identity	30	CA	1	1	0	1	2	The building reflects local culture, heritage, and identity	<ul> <li>The building's design reflects and celebrates local demographics and identities, the history of the place, and any hidden or minority entities.</li> <li>or</li> <li>This outcome was arrived through meaningful engagement with community groups early in the design process.</li> </ul>
Inclusive Construction Practices	31.1	ME	-	ME	0		ME	The builder's construction practices promote diversity and reduces physical and mental health impacts.	<ul> <li>During the building's construction, the head contractor provides gender inclusive facilities and protective equipment. The head contractor also installs policies on-site to increase awareness and reduces instances of discrimination, racism, and bullying.</li> </ul>
e galinclusive Construction Practices	31.2	CA	1	1	0		1	The builder's construction practices promote diversity and reduces physical and mental health impacts.	In addition to the Minimum Expectation: • Policies and programs implemented are relevant to construction workers on site. • The head contractor provides high quality staff support on-site to reduce at least five key physical and mental health impacts. • The effectiveness of the interventions are evaluated.
Indigenous Inclusion	32	CA	2	0	2		2	The building celebrates Aboriginal and Torres Strait Islander people, culture, and heritage.	<ul> <li>The project team plays an active role in the organisational Reconciliation Action Plan.</li> <li>or</li> <li>The building's design and construction incorporates design elements using the Indigenous design and planning strategies and principles.</li> </ul>
Procurement and Workforce Inclusion	33.1	CA	2	0	0	2	2	The building's construction facilitates workforce participation and economic development of disadvantaged and under-represented groups.	<ul> <li>The project implements a social procurement plan.</li> <li>At least 2% of the building's total contract value has been directed to generate employment opportunities for disadvantaged and under-represented groups.</li> </ul>
Procurement and Workforce Inclusion	33.2	EP	1	0	0		0	The building's construction facilitates workforce participation and economic development of disadvantaged and under-represented groups.	In conjunction with the Credit Achievement: • The project implements a social procurement plan. • At least 4% of the building's total contract value has been directed to generate employment opportunities for disadvantaged and under-represented groups.
Design for Inclusion	34.1	CA	2	2	0		2	The building is welcoming to a diverse population and is welcoming to their needs.	The building is designed and constructed to be inclusive to a diverse range of people with different needs.
Design for Inclusion	34.2	EP	1	0	0	1	1	The building is welcoming to a diverse population and is welcoming to their needs.	In addition to the Credit Achievement: • Engagement with target groups has informed the inclusive design.
Impacts to Nature	35.1	ME	-	ME	0		ME	Ecological value is conserved and protected	<ul> <li>The building was not built on, or significantly impacted, a site with a high ecological value.</li> <li>The building's light pollution has been minimised.</li> <li>There is ongoing monitoring, reporting, and management of the site's wetland ecosystem.</li> </ul>

Category	Credit	Credit No.	ME / CA / EP	Points Available	4 Star Points	5 Star Points	6 Star Points (Aspiratio n)	Total Points Targeted	Outcome	Criteria
Nature	Impacts to Nature	35.2	CA	2	0	0	2	2	Ecological value is conserved and protected	In addition to the Minimum Expectation: • The building's design and construction conserves existing natural soil, hydrological flows, and vegetation elements. • If deemed necessary by an Ecologist, at least 50% of existing site with high biodiversity value is retained.
Nature	Biodiversity Enhancement	36.1	CA	2	0	0	2	2	The building's landscape enhances the biodiversity of the site.	The building's site includes an appropriate landscape area.     The landscaping includes a diversity of species and prioritises the use of climate resilient and indigenous plants.     The project team develops a site-specific Biodiversity Management Plan and provides it to the building owner or building owner representative.
Nature	Biodiversity Enhancement	36.2	EP	2	0	0		0	The building's landscape enhances the biodiversity of the site.	In addition to the Credit Achievement: • A greater area of landscaping is provided. • The landscaping includes critically endangered and/or endangered plant species native to the bioregion.
Nature	Nature Connectivity	37	CA	2	0	0		0	Wildlife movement is facilitated within and adjacent to the site.	<ul> <li>The site must be built to encourage species connectivity through the site, and to adjacent sites. If the project sits within a blue or green grid strategy it must contribute to the goals of the strategy</li> </ul>
Nature	Nature Stewardship	38	СА	2	0	0		0	Biodiversity is restored beyond the building site.	Areas of restoration or protection are provided.     Restoration or protection activities are beyond the development's boundary.     The building owner, as part of the project's development, undertakes activities that protects or restores biodiversity at scale.     These actions occur beyond legislated requirements.
Nature	Waterway Protection	39.1	CA	2	0	0	2	2	Local waterways are protected, and the impacts of flooding and drought are reduced.	The project demonstrates a reduction in average annual stormwater discharge (ML/yr) of 40% across the whole site.     Specified pollution reduction targets are met.
Nature	Waterway Protection	39.2	EP	2	0	0		0	Local waterways are protected, and the impacts of flooding and drought are reduced.	In conjunction with the Credit Achievement: • The project demonstrates a reduction in average annual stormwater discharge (ML/yr) of 80% across the whole site. • Specified pollution reduction targets are met.
Leadership	Market Transformation	40	CA	5	0	0		0	Celebrates initiatives or outcomes that are deemed new and break barriers, and in turn inspire others to follow	The project implements a building solution or process that is considered leading in their targeted sector, nationally or globally.
Leadersh	Leadership Challenges	41	CA	Unlimited	0	0	1	1	Promotes achievements that are considered leading practice in Australia	The project meets the requirements of a Leadership Challenge developed by the GBCA.