

## Project

711 Hunter Street, Newcastle West, 2302

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# Document Control

Reference/Revision	Date	Description	ESD Report		
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### 1 Introduction

This ESD report outlines the local sustainable governmental legislation and planning documents that governs the area of this development. Adhering to these planning controls and referring to best practice design for new builds this development will achieve significant sustainable criteria in line with the relevant legislation.

### 1.1 Building Location & Description

The building, the subject of this report, is located at 711 Hunter Street, Newcastle West, 2302. The project is a mixed used development comprising of two residential towers with retail and commercial facilities.

## 1.2 Objectives

The purpose of this report is to provide cost effective environmentally sustainable development design guidance in accordance with local legislation and benchmark sustainable rating schemes.

These objectives are in-line with the design intent of this development which is to encourage a permeable public amenity space with future connection capabilities that is secure after dark.

## 1.3 Sustainable Design Legislation

This development is governed by:

- a. Newcastle LEP 2012 (NLEP 2012)
- b. Newcastle Development Control Plan 2012 (NDCP 2012)
- c. National Greenhouse and Energy Reporting Act 2007.

# 1.4 Best Practice Sustainable Design Benchmark

This development will be assessed against Greenstar-Buildings Rating for the commercial area only. This report is aligned with the minimum target of 4 Stars Greenstar for commercial and retail area whilst, residential facilities are subject to BASIX according to NDCP 2012.

### 1.5 Site Location

Marked in yellow bellow is the site location within the commercial core of Newcastle City Council boundary.





### 2 Legislation

This report looks specifically at sustainable practices within legislation which will be directly applicable to this development.

### 2.1 Newcastle Local Environmental Plan 2012 - NLEP under Zone B3

- 1. Environmental impacts such as sustainable design, overshadowing, wind and reflectivity
- 2. The achievement of the principles of ecologically sustainable development
- 3. Pedestrian, cycle, vehicular and service access, circulation requirements

For the purpose of a building, the development would successfully claim grant consent by the consent authority if the following were satisfied as stated on clause *33 Ecologically Sustainable Development* of Part 5 Miscellaneous provisions of the LEP:

- a. Greenhouse gas reduction
- b. Embodied energy in materials and building processes
- c. Building design and orientation
- d. Passive solar design and day lighting
- e. Natural ventilation
- f. Energy efficiency and energy conservation
- g. Water conservation and reuse
- h. Waste minimisation and recycling
- i. Reduction of car dependence
- j. Potential for adaptive reuse

# 2.2 Newcastle DCP 2012 – NDCP

The purpose of this section is to improve the environmental sustainability of the Newcastle environment and in so doing, contribute to the conservation of natural resources and global environmental improvement.

### 3.2.1 Energy Efficiency (DCP Clause 7.05)

Specifically, this part aims to:

- 1. To encourage sustainable development.
- 2. To encourage the innovation of energy efficient technologies and processes.
- 3. To encourage efficient use of resources and the use of recycled materials.
- 4. To promote best practice energy use.
- 5. To improve the efficiency of energy use and reduce the long-term energy consumption for residential, business, and industrial uses.
- 6. To restrict the reflection of sunlight from buildings onto surrounding areas and buildings.



3.2.1A. Residential development requirements can be achieved by (DCP clause 3.03):

- a. Residential developments are carried out in accordance with the requirements set in State Environmental Planning Policy Building Sustainability Index (BASIX).
- b. A section of north facing roof is provided to allow for future installation of solar panels.
- c. Optimise natural light access to reduce the amount of energy used to run artificial lighting.

BASIX	NCC 2019	NCC 2022*
Energy Target	20%	62%

\*The energy target of NCC 2022 may be subject to change

## 3.2.1B Business development requirements can be achieved by (DCP clause 7.05.01):

- a. Development is to meet a minimum 4 Star Green Star Rating in the Green building Council of Australia (GBCA) rating system where applicable.
- b. An energy efficiency report from a suitable qualified consultant should accompany any development application for new commercial office development over \$5 million is estimated cost. The required report is to demonstrate that the building would achieve a rating if not less than 4 Star Green Star Rating in the GBCA where applicable.
- c. The placement of glassing on new buildings and facades does not result in glare that causes discomfort or threatens safety of pedestrian or drivers, or negatively impact on adjoining development.
- d. Building materials used on the facades of new buildings are low reflectivity.

# 3.2.2. Stormwater (DCP Clause 7.06.02)

Specifically, this part aims to:

- a. Ensure stormwater is controlled in a way that minimises nuisance to adjoining properties.
- b. Match post development runoff to the predevelopment or natural water runoff regime as closely as possible.
- c. Minimise soil erosion and sedimentation from site disturbance.
- d. Prevent pollutant such as litter, sedimentation from the site disturbance.
- e. Minimise the potential impacts of development and other associated activities on the aesthetics, recreational and ecological values of receiving waters.
- f. Ensure appropriate easements are provided over drainage systems on private properties.
- g. Ensure easements are unimpeded by development for maintenance purposes.
- h. Protect natural watercourses and their associated ecosystems and ecological processes.
- i. Incorporate water sensitive urban design elements into the landscape in a manner that provides multiple benefits including: water quality protection, stormwater retention and detention as well as ecological enhancement.
- j. Provide objectives, targets and controls (where appropriate) for the management of waterfront lands, water use, stormwater and groundwater.
- k. Ensure stormwater infrastructure is identified on site and can be appropriately maintained.



To clearly define the stormwater disposal requirements for development local in coastal wetland catchment and minimise the impacts of stormwater run-off on coastal wetlands.

## All types of development requirements can be achieved by:

- 1. The water cycle management plan or stormwater management plan (whichever is submitted with the development application) includes the following items:
  - a. Stormwater Collection
    - Australian Standard 3500.3 sets appropriate standards for stormwater collection and is to be followed when constructing new development.
    - Part 3 of the Stormwater and Water Efficiency for Development Technical Manual provides more guidance on stormwater collection and should also be considered.
  - b. Flooding and Runoff Regimes
    - Development is to be designed so that runoff from low intensity, common rainfall is equivalent to the runoff from a natural catchment. This can be achieved by intercepting and storing 12mm of rainfall from a minimum of 90% of the impervious area of the site.
    - Runoff from the development up to the 1% AEP shall be drained to the major drainage system in a manner that poses nil adverse impact to neighbouring property.
    - Development is to be designed so that peak runoff from the site for all events is not greater than the 'natural' drainage conditions of the site.

### c. Storage





						Impervic	ous Area				
		100m <sup>2</sup>	250m <sup>2</sup>	300m <sup>2</sup>	350m <sup>2</sup>	500m <sup>2</sup>	600m <sup>2</sup>	750m <sup>2</sup>	1000m <sup>2</sup>	1500m <sup>2</sup>	2000m <sup>2</sup>
	100m <sup>2</sup>	2.5									
	250m <sup>2</sup>	1.2	6.3m <sup>3</sup>								
	500m <sup>2</sup>	1.2	3.1m <sup>3</sup>	4.4m <sup>3</sup>	6.0m <sup>3</sup>	12.5m <sup>3</sup>					
Site	600m <sup>2</sup>	1.2	3.1m <sup>3</sup>	3.6m <sup>3</sup>	5.0m <sup>3</sup>	10.3m <sup>3</sup>	15.0m <sup>3</sup>				
7100	750m <sup>2</sup>	1.2	3.1m <sup>3</sup>	3.6m <sup>3</sup>	4.2m <sup>3</sup>	8.2m <sup>3</sup>	11.9m <sup>3</sup>	18.8m <sup>3</sup>			
	1000m <sup>2</sup>	1.2	3.1m <sup>3</sup>	3.6m <sup>3</sup>	4.2m <sup>3</sup>	6.0m <sup>3</sup>	8.8m <sup>3</sup>	13.9m <sup>3</sup>	25.0m <sup>3</sup>		
	1500m <sup>2</sup>	1.2	3.1m <sup>3</sup>	3.6m <sup>3</sup>	4.2m <sup>3</sup>	6.0m <sup>3</sup>	7.2m <sup>3</sup>	9.0m <sup>3</sup>	16.3m <sup>3</sup>	37.5m <sup>3</sup>	
	2000m <sup>2</sup>	1.2	3.1m <sup>3</sup>	3.6m <sup>3</sup>	4.2m <sup>3</sup>	6.0m <sup>3</sup>	7.2m <sup>3</sup>	9.0m <sup>3</sup>	12.0m <sup>3</sup>	27.8m <sup>3</sup>	50.0m <sup>3</sup>

Storage requirements (cubic metres) Note 1 cubic metre = 1000L

Total site area: 4724 m<sup>2</sup>

Impervious Area: 1905m<sup>2</sup>

Storage: 23.04m<sup>3</sup>/ 23, 040L



- d. Storage drawdown
  - The stored water must be drawn down at a minimum rate of 2mm of rainfall per day (0.023L per second per 1000m2 contributing catchment). this can be achieved by using the water internally in the development by connection to toilet cisterns and washing machine taps, or by disposing to groundwater.
  - While the stored water can be used for garden irrigation, there are few additional benefits to stormwater management due to the intermittent nature of garden watering (especially during rain).
  - Alternatively, the stored water may be released back to the catchment. In order to ensure flows do not form erosive velocities downstream, the maximum discharge rate must not exceed 2mm of rainfall per hour (0.5L per second per 1000m2 contributing catchment).
- e. Site discharge controls
  - Details for certain 'site discharge controls' can be found in Part 4 of the 'Stormwater and Water Efficiency for Development Technical Manual'.
    - Total Suspended Solids85% reduction in the average annual load of Total<br/>Suspended Solids.Total Nitrogen45% reduction in the average annual load of Total<br/>Nitrogen.Phosphorous65% reduction in the average annual load of Total<br/>Phosphorus.Gross Pollutants90% reduction in the average annual load of Gross<br/>Pollutants (>5mm).Hydrocarbons100% removal.
- f. Water Quality and Quantity Targets (same as Green Star)

- g. Overflow disposal
  - Securing appropriate easements over downstream properties or discharging overflows directly to the street system where feasible.
     Overflows from paved areas adjacent to the property boundary are to be directed by a kerb or formed gutter to drain away from neighbouring properties.
- h. Existing drainage system
  - New buildings are not to be constructed over or compromise the integrity of drainage lines or easements including those originating from outside the site.
- 2) Stormwater treatment measures are integrated into the urban design and landscaped areas.



3) Water use within open spaces (for uses such as irrigation and water features) is supplied from non potable sources such as recycled water, roof water, harvested stormwater or other non licensed water sources to meet a minimum of 50% of the demand and treated to an appropriate standard in accordance with NSW State Government and Commonwealth Standards.

### 3.2.3. Water Efficiency (DCP clause 7.07)

Specifically, this part aims to:

- 1. To assist in efficient use of mains water.
- 2. To encourage sustainable development.
- 3. To utilise rainwater within developments.
- 4. To minimise the consumption of potable water and discharge of wastewater.

#### 3.2.3A. Residential development requirements can be achieved by:

Development for the purpose of residential accommodation is carried out in accordance with the requirements set out in State Environmental Planning Policy Building Sustainability Index (BASIX) 2004

Water Commitments:

Device	Draft BASIX Commitments			
	Option 1 – 40% pass	Option 2 – 40% pass		
Shower Heads	4star 6L-7.5L/min	4star 6L – 7.5L/min		
Toilet	4 Star	3 Star		
Kitchen and Bathroom Taps	6 Star	3 Star		
Dishwasher	2 Stars	3 Star		
Rainwater Tank	800L	5500L		
Water Tank Connection	Common landscape only	Common landscape &		
		toilets		

#### 3.2.3B. Business development requirements can be achieved by:

- 1. Plumbing fixtures and water appliances:
  - minimum WELS 3 Star Water Rating if not supplied by roof water tank.
  - maximum 6L dual flush toilet cisterns where not supplied by a roof water tank.

2. A rainwater tank is installed for the dual purposes of mains water demand management and reducing the volume of stormwater discharge from sites. Rainwater tanks should be designed to cater for maintenance and cleaning.

3. Where devices in the table below are installed, they are to be of the type indicated. Where water is supplied to washing appliances from roof water tanks, this requirement does not apply.



Device	DCP Requirements	4-Star - Green Star Requirements
Shower heads	WELS 3 star or better	3 Star
Urinals	-	5 Star
Toilet	6L-3L dual flush	4 Star
Basin Taps	WELS 3 star or better	5 Star
Dishwasher	WELS 3 star or better	5 Star
Washing Machine	WELS 3 star or better	4 Star

# 3.2.4. Waste Management (DCP clause 7.08)

Specifically, this part aims to:

- a. Minimise resource requirements and construction waste through reuse and recycling and the efficient selection and use of resources.
- b. Minimise demolition waste by promoting adaptability in building design and focussing upon end of life deconstruction.
- c. Encourage building designs, construction and demolition techniques in general which minimise waste generation.
- d. Maximise reuse and recycling of household waste and industrial/commercial waste.
- e. Ensure waste management systems are compatible with collection services.
- f. Minimise risks associated with waste management at all stages of development.

## All development requirements can be achieved by:

- All development applications (including demolition, construction and the ongoing use of a site/premise) are to include a Site Waste Minimisation and Management Plan (SWMMP) within their Statement of Environmental Effects demonstrating compliance with this section's requirements.
- 2. In addition to submission of a SWMMP (as part of the Statement of Environmental Effects), the waste management facilities, proposed as part of the development, clearly illustrated on the plans of the proposed development, accompanying the development application (DA).
- 3. The SWMMP nominates:
  - a. volume and type of waste and recyclables to be generated
  - b. storage and treatment of waste and recyclables on site
  - c. disposal of residual waste and recyclables
  - d. operational procedures for ongoing waste management once the development is complete.
- 4. The SWMMP details the method of recycling or disposal and the waste management service provider.

\*Refer to the Operation Waste Management Plan by Elephant Foot (Revision A Report No.3469) for this section.



# 2.3 ESD initiatives applicability to LEP/DCP Controls

The following chapter of the report shows the Greenstar(GS) codes for each GS credit to meet 4 Stars certification. At the same time, these credits are targeted to meet the legislative ESD requirements required by council listed in the LEP and DCP.

Legislation name	LEP Clause	GreenStar – Building Code		
	33 (a) Greenhouse Gas Reduction	21:Upfront Carbon		
		Emissions,		
		22: Energy Use		
	33 (b) Embodied energy in materials and	2:Responsible,		
	building process	8: Responsible Structure		
		9: Responsible Systems		
	33 (c) Building design and orientation	10: Clean Air		
		11: Light Quality		
		35: Impacts to Nature		
NLEP 2012	33 (d) Passive solar design and daylighting	10: Clean Air		
		11: Light Quality		
	33 (e) Natural ventilation	10: Clean Air		
	33 (f) Energy efficiency and energy	22: Energy Use		
	conservation	25: Water Use		
	33 (g) Water conservation and reuse	25: Water Use		
	33 (h) Waste minimisation and recycling	2: Responsible Construction		
		4: Operational Waste		
	33 (i) Reduction of car dependence	27: Movement & Place		
	33 (j) Potential for adaptive reuse	9: Responsible Finishes		

Legislation name	DCP Clause	Green Star - Buildings
	7.05 Energy Efficiency	
	3.03.a: BASIX in accordance with SEPP	22: Energy Use
	3.03.b: Provision of solar panels	23: Energy Source
	3.03.c: Optimise natural light access	11: Light Quality
	7.05.01: (b) energy efficiency for commercial	21: Upfront Carbon
	areas	Emissions
		22: Energy Use
		23: Energy Source
	7.06.02 Stormwater	25:Impacts to Naturo
NDCP 2012	(1) Water Cycle Management Plan Provisions	26: Piodivorsity
	(2) Stormwater Treatment measures	Enhancement
	(3) Water use within open spaces	Liniancement
	7.07 Water Efficiency	
	Water efficiency for residential provisions in	25: Water Use
	BASIX	35: Impact to Nature
	Water efficiency for commercial areas	
	7.08: Waste Management	2: Responsible
		Construction
		4: Operational Waste



### 3 Benchmark Sustainable Design

All ESD rating schemes approach sustainable design by considering all the stakeholders in the development. This is the design approach we are proposing for this development.

#### 3.1 ESD Categories

Best practice ESD initiatives can be achieved through the Green Star-Buildings assessment against and application of the following categories:

- Responsible
- Healthy
- Resilient
- Positive
- Places
- People
- Nature
- Leadership

Within these categories there are subcategories with their relevant initiatives.

The following table shows what categories are targeted.

Category	Targeted
Responsible	Yes
Healthy	Yes
Resilient	Yes
Positive	Yes
Places	Yes
People	No
Nature	Yes
Leadership	No

The targeting of these Eight categories shows a comprehensive commitment to sustainable design.



# 4 Green Star Category - Buildings

The following is a summary of the list of potential categories and initiatives that can be followed to achieve a 4-Star Greenstar Building Rating.

There are 13 minimum expectations/requirements to be achieved nominated as "min" in the tables.

There are 15 credits targeted on top of this to achieve a 4-Star Rating.

Category	Code	Credit Criteria	Available	Targeted
	1	Accredited Professional		-
Industry		Financial Transparency	1	
Development		Market Sustainability Achievements		
		Environmental Management System		
		Environmental Management Plan	1 .	
Responsible	2	Construction & Demo Waste	IV	in
Construction		Sustainability Training		
		GS Construction & Demo Waste Reporting Criteria	1	-
		Metering & Monitoring		
Verification &	2	Environmental Performance Targets - Airtightness	M	in
Handover	3	Operations & maintenance info		
		Independent Commissioning Agent	1	-
Operational Waste	4	Operational Waste	M	lin
Responsible	-	Sustainable Design & Construction procurement		
Procurement	5	Supply chain risk & opportunity	1	-
	6	80% - Structural - Responsible Products Value at least 10	3	-
Responsible Structure		10% - Structural - Responsible Products Value of at least 15	2	-
		<b>OR</b> 30% of all products in the structure (by cost) have an average Responsible Products Value of at least 12.	2	-
	7	60% - Building Envelope - Responsible Products Value of at least 10	2	-
Responsible Envelope		10% - Building Envelope - Responsible Products Value of at least 15; OR	2	-
		25% - Building Envelope - Responsible Products Value at least 25	L	-
Responsible	0	20% - Building Systems - Responsible Products Value - 6	1	1
Systems	0	5% - Building Systems - Responsible Products Value - 11	1	-
Responsible	0	60% - Internal building finishes - Responsible Products Value - 7	1	1
Finishes	9	10% - Internal building finishes - Responsible Products Value - 12	1	-
		Total Targeted	17	2

# 4.2.1 – Responsible



4.2.2	— H	lea	lt	hv

Category	Code	Credit Criteria	Available	Targeted	
		Indoor pollutants are acceptable levels			
		High level of fresh air	Min		
Clean Air	10	Pollutant entering the building are minimised			
		Ventilation system maintenance	_		
		High level of outdoor air	2	2	
		Minimum comfort requirements			
		Good Lighting levels	M	in	
		Adequate levels			
Light	11	Best practice artificial lighting; OR	2	2	
Quality		Best practice daylighting	2	2	
		Best practice artificial lighting; AND	2		
		Best practice daylighting	2	-	
	12	Acoustic comfort strategy	Min		
Acoustic Comfort		The building achieves max internal noise levels; AND	2	_	
		The building provides acoustic separation	Z		
	10	Low TVOC's for paints, adhesives, sealants, and carpets			
Exposure to		Engineered wood products are low TVOC or non-toxic	Min		
Toxins	15	Occupants are not exposed to banned or highly toxic materials			
		On-site tests verifying low VOC and formaldehyde levels	2	-	
Amenity & Comfort	14	Dedicated amenity rooms (parent room, relaxation, exercise room)	2	-	
Connection	15	Views, indoor plants;	1	-	
to Nature	CT	5% - floor area is allocated to nature	1	-	
	14	4			

# 4.2.3 - Resilient

Category	Code	Credit Criteria	Available	Targeted	
Climate Change Resilience	16	Climate change pre-screening checklist.	Min		
		Project specific climate change risk and assessment	1		
		Extreme and high risks are addressed	Ŧ	-	
Quanationa		Review of chronic stresses likely to influence future building operations			
Resilience	17	Operational plans for high-extreme system level interdependency risks	2	-	
		Survivability and design for a blackout			
Community Resilience	18	Needs analysis of the community, identify stresses that impact the buildings' ability to service the community and develop responses.	1	-	
Heat Resilience	19	75% - of the whole site uses strategies that reduce heat island	1	1	
		The building provides active generation & storage systems			
Grid Resilience	20	OR The building has the infrastructure to deliver a demand response strategy	. 3	-	
	20	OR The building has reduced its electricity consumption via passive design			
	•	Total Targeted	8	1	



4.2.4 - Positive	1.2.	4 -	- Pc	)si	tiv	'e
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Category	Code	Credit Criteria	Available	Targeted	
Upfront		Upfront carbon emissions – 10% less than a reference building	Min		
Carbon	21	Upfront carbon emissions – 20% less than a reference building; AND	2		
Emissions		Demolition work is offset	3	-	
		Upfront carbon emissions – 40% less than a reference building	3	-	
_		The building energy use is less than 10% less than a reference building	Min		
Energy	22	The building energy use is less than 20% less than a reference building	3	3	
Use		The building energy use is less than 30% less than a reference building	3	-	
Energy Source	23	The building provides a Zero Carbon Action Plan	Min		
		100% of the building's electricity comes form renewable electricity	3	-	
		100% of the building energy comes from renewables	3	-	
	r on 24	The building eliminates emissions from refrigerants; OR		-	
Other Carbon		The building owner offsets emissions form refrigerants (maximum GWP of 10;	2		
Emissions		All other emissions not captured in the Positive category are eliminated or offset	2	-	
Mator		Installs efficient water fixtures	Min		
Water	25	Uses 45% less potable water compared to reference building	3	-	
USE		Uses 75% less potable water compared to reference building	3	-	
Life Cycle Impacts	26	Life cycle Impacts - 30% reduction compared to standard practice	2	-	
		Total Targeted	30	3	

#### 4.2.5 - Places

Category	Code	Credit Criteria	Available	Targeted		
Movement &		The building includes showers and changing facilities for building occupants The facilities are accessible, inclusive, and located in a safe and	Min			
	27	protected space The buildings access prioritises cycling and includes bicycle parking facilities				
		A sustainable transport plan has been prepared and implemented The building has EV charging capabilities	3	3		
		Transport options that reduce the need for private fossil fuel powered vehicles are prioritised		1		
		The buildings design and location encourage walking				
Enjoyable Places	28	<ul> <li>The building delivers memorable, beautiful, vibrant communal or public spaces where people want to gather and participate in the community</li> </ul>		-		
		The spaces are inclusive, safe flexible and enjoyable.				
Contribution to Place	29	The building design contributes to the liveability of the wider urban context and enhances the public realm; OR Independent reviews are held during the development of the	2	-		
		design				
Culture, Heritage and	30	The buildings design reflects and celebrates local demographics and identities, the history of the place, and any hidden or minority entities; OR		-		
Identity		This outcome was arrived through the meaningful engagement with community groups early in the design process.		1		
	Total Targeted					



426	- Peopl	e
4.2.0	- FEUPI	E

Category	Code	Credit Criteria	Available	Targeted	
Inclusive		During 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.	Min		
Construction Practices	31	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 physical and mental health impacts	1	-	
Indigenous Inclusion		The project team plays an active role in the organisational			
	32	Reconciliation Action Plan; OR The building's design and construction incorporates design elements using the indigenous design and planning strategies and principles	2	-	
Procurement	22	The project implements a social procurement plan. At least 2% of the buildings total contract value has been directed to generate employment opportunities or disadvantaged and under-represented groups.	2	-	
& Workforce Inclusion	33	The project implements a social procurement plan At least 4% of the buildings total contract value has been directed to generate employment opportunities for disadvantaged and underrepresented groups.	1	-	
Design for	24	The building is designed and constructed to be inclusive to a diverse range of people with different needs.	2	-	
Inclusion	34	Engagement with target groups has informed the inclusive design	1	-	
		Total Targeted	9	0	

# 4.2.7 - Nature

Category	Code	Credit Criteria	Available	Targeted	
Impacts to Nature		The building was not built on, or significantly impacted a site with a high ecological value.			
		The buildings light pollution has been minimised	М	in	
	35	There is ongoing monitoring, reporting and management of the site's wetland ecosystem.			
		The buildings design and construction conserves existing natural soil, hydrological flows and vegetation elements.	2		
		If deemed necessary by an Ecologist, at least 50% of the existing site with high biodiversity value is retained.	2	-	
Biodiversity Enhancement		The buildings site includes an appropriate landscape area.			
	36	The landscaping includes a diversity of species and prioritises the use of climate resilient and indigenous plants		2	
		The project team develops a site-specific Biodiversity Management Plan and provides it to the building owner or	2		
		building owner representative.			
		A greater of landscaping is provided			
		The landscaping includes critically endangered and/or	dangered and/or 2		
		endangered plant species native to the bioregion.		ļ	
Nature Connectivity	37	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.	2	-	
		Areas of restoration or protection are provided.			
Nature Stewardship		Restoration or protection activities are beyond the development's boundary.	-	-	
	38	The building owner, as part of the project's development, undertakes activities that protects or restores biodiversity at scale.	2		
		These actions occur beyond legislated requirements.			



Waterway Protection	20	The project demonstrates a reduction in average annual stormwater discharge (ML/yr) of 40% across the whole site Specified pollution reduction targets are met	2	-
	59	The project demonstrates a reduction in average annual stormwater discharge (ML/yr) of 80% across the whole site	2	-
		Specified pollution reduction targets are met		
Total Targeted				2

### 4.2.8 - Leadership

Category	Code	Credit Criteria	Available	Targeted
Market Formation	40	The project implements a building solution or process that is considered leading in their targeted sector, nationally or globally.	5	-
Leadership Challenges	41	The project meets the requirements of a Leadership Challenge developed by the GBCA.	ТВС	-



## 5 Concluding Summary

Best practice ESD initiatives can be achieved via targeting a 4-star Green Star Buildings Rating as stated as minimum requirement in the NDCP2012 for commercial areas only. Whist, residential facilities are subject to BASIX in accordance with the Sustainable Building State Environmental Planning Policy (SEPP) for all ESD controls. Therefore, this report provides examples on how these requirements can be achieved right from conceptual design stage.

Overall, section 3.3 outlines the ESD initiatives that can satisfy the legislative sustainability requirements of both NLEP2012 and NDCP2012. Whilst the targeted Green Star categories summarized in section 4.1 achieves an equivalency of 4-stars Green Star Buildings rating.



# Appendix A – Green Star Building Scorecard

Credit	Minimum Expectation	Credit Achievement	Exceptional Performance	Total points available	Targeted performance level	Total points targeted	Comments
Responsible				17			
1 Industor Development		1		1			
2 Responsible Construction		1		1	Minimum Expectation		
3 Verification and Handover		1		1	Minimum Expectation	•	
4 Operational Waste				0	Minimum Expectation	•	
5 Responsible Procurement		1	-	1	Credit Achievement	1	
6 Responsible Structure		3	2	5			
7 Responsible Envelope		2	2	4			
8 Responsible Systems		1	1	2	Credit Achievement	1	
9 Responsible Finishes	-	1	1	2			
					Total	2	
Healthy				14			
					· · · · · · · · · · · · · · · · · · ·		
10 Clean Air	•	2	-	2	Credit Achievement	2	
11 Light Quality	· · · · ·	2	2	4	Credit Achievement	2	
12 Acoustic Comfort		2	-	2	Minimum Expectation	•	
13 Exposure to Toxins	•	2	-	2	Minimum Expectation	•	
14 Amenity and Comfort		2	-	2			
15 Connection to Nature	-	1	1	2	Tetel		
					lotal	4	
Resilient				8			
16 Climate Change Resilience		1		1	Minimum Expectation		
17 Operations Resilience		2		2	Wining Copectation	-	
18 Community Resilience		1	-	1			
19 Heat Resilience	_	1		1	Credit Achievement	1	
20 Grid Resilience		3		3			
					Total	1	
Positive				30			
21 Upfront Carbon Emissions	•	3	3	6	Minimum Expectation	•	
22 Energy Use	•	3	3	6	Credit Achievement	3	
23 Energy Source	•	3	3	6			
24 Other Carbon Emissions	-	2	2	4			
25 Water Use	•	3	3	6	Minimum Expectation	•	
26 Life Cycle Impacts	-	2		2			
					Total	3	
Places				8			
27 Maxament and Direc		2		2	Credit Ashianament	2	
27 Movement and Place		2	-	3	Credit Achievement	3	
29 Contribution to Place	-	2		2			
30 Culture Heritage and Identity		1		1			
outlie, Henrage and Identity				· · ·	Total	3	
People				9			
31 Inclusive Construction Practices	•	1		1	Minimum Expectation	•	
32 Indigenous Inclusion	-	2	-	2			
33 Procurement and Workforce Inclusion	-	2	1	3			
34 Design for Inclusion	-	2	1	3			
					Total		
Nature				14			
35 Impacts to Nature	•	2	-	2	Minimum Expectation	•	
36 Biodiversity Enhancement	-	2	2	4	Credit Achievement	2	
37 Nature Connectivity		2	-	2			
39 Waterway Protection	-	2	2	2			
55 Waterway Protection	-	2	2	4	Total	2	
					Total	2	
Leadership				0			
40 Market Transformation	-		-	0			
41 Leadership Challenges	-		-	0			
					Total		

