JOSH BYRNE & ASSOCIATES

Title	*65 South Terrace Proposed Hotel Development* SUSTAINABILITY STRATEGY
Prepared for	Yolk Property Group
Date	28 January 2021

Table of Contents

Tables

1 Executive Summary

The various elements of SPP7.0 Schedule 1, Design Principle 5: Sustainability are addressed in some detail in the Green Star process, which the project has committed to implementing.

2 Disclaimer

IMPORTANT: This report assesses the proposed project against the requirements of Green Star *Design & As Built v1.2*, which is owned and administered by the Green Building Council of Australia (GBCA). This assessment in no way indicates that the project has achieved any recognition from the GBCA. It is important that no implication be made at any point that this project has is in some way been Green Star endorsed, or any similar language used, as this would violate the GBCA's intellectual property. To use the term 'Green Star' or related terms or communication materials in public communications about the project, a full certification process must be undertaken. For clarity: this restriction applies to the City of Fremantle as well as to the developer, and to any other party.

3 Background

JBA has reviewed the *65 South Terrace Proposed Hotel Development* concept design and the intended hotel operator brief, and has determined that the project is capable of achieving a 4-star Green Star benchmark on the basis of the Green Star Pathway in this report, if full registration and documentation submission were completed.

The Pathway indicates credits and associated points that the project is targeting.

- Total Green Star points required for 4-star: **45**
- Points targeted in current project Pathway: **50**

The Pathway targets 10% more points than the minimum benchmark, indicating that the determination is conservative and robust.

The Pathway lists targeted credits, explains briefly how compliance is to be achieved, lists any documentation requirements for the project team, and assigns each credit to a project team discipline or disciplines at the design stage. These disciplines will ensure that the relevant requirements are incorporated into drawings and specifications that then become the contractual responsibility of the Main Contractor and their sub-contractors.

4 Alignment to SPP7.0 Schedule 1, Design Principle 5: Sustainability

The keynote for Schedule 1 states:

Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.

Table 1 below shows how this strategy aligns to Schedule 1, Design Principle 5.

Table 1: Alignment of Sustainability Strategy to SPP7.0, Schedule 1, Design Principle 5

Schedule 1 Principles	Relevant Initiative
Water-sensitive urban design principles and total water cycle management	Wat 18B.1: Highly efficient fixtures and fittings specified. Wat 18B.3: No water used in cooling system Wat 18B.4: Highly efficient irrigation system specified. Emi 26.1: 100% stormwater infiltrated onsite.

Schedule 1 Principles	Relevant Initiative
	Wat 18B.5: No water expelled during testing of Fire System.
Supporting ecological processes and green infrastructure	Eco 24: No damage to existing ecological value of site. Eco 24.1: Reuse of previously developed land. Eco 25: Retaining existing trees and increasing green coverage of site through on-building planting.
Passive Design	Ene 15E.1: Targeting NABERS Energy 5.5-stars goes far beyond a typical building of this type and will rely on passive design approaches as well as efficient mechanical systems. Ene 16: Heat reclaim maximises the amount of fresh air while minimising energy consumption. IEQ 12.1: Designed to optimise daylight capture.
Renewable energy sources	Ene 15E.1: The 35-kilowatt rooftop PV system is expected to produce around 51,000-kilowatt-hours per year.
Materials and Waste Management	Man 8: Bin store is designed to encourage source separation. Mat 19B.1: Concrete uses an eco-mix to reduce embodied emissions, with Portland cement content reduced by around 30% across the site. Mat 20.1: Structural and Reinforcing Steel from certified responsible sources only. Mat 20.2: Timber from accredited sustainable forestry sources only. Mat 20.3: PVC products from Best Practice sources only. Mat 22B: 90% recycling of D&C waste.

5 Indicative Green Star Pathway

Table 2: Indicative Green Star Pathway

CATEGORY	CODE	CREDIT CRITERIA	POINTS AVAILABLE	POINTS TARGETED	COMMENTS	DOCUMENTATION	Responsible Design Stage Discipline(s)
Man	1	Accredited Professional	1	1	JBA will be assigned as Green Star Accredited Professional to the project.	Evidence of AP status or lead Green Star consultant.	ESD
Man	2	Environmental Performance Targets	-	Complies	The owner's intent is captured in the DA submission.	DA submission contains the targets, including this Green Star pathway, and the design philosophy to achieve them.	Developer
Man	2.1	Services and Maintainability Review	1	1	Services Engineers will review the detailed design to ensure that commissioning process is fully integrated as per Green Star requirements.	Commissioning review to be undertaken and Commissioning Plan included in the building tender docs.	Mech / Elec / Hydraulic
Man	2.2	Building Commissioning	1	1	Main contractor will be required to fully commission services.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Mech / Elec / Hydraulic / Arch
Man	2.3	Building Systems Tuning	1	1	Main contractor will be required to fully commission services.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Mech / Elec / Hydraulic / Arch
Man	2.4	Independent Commissioning Agent	1	0	Not targeted		
Man	3.1	Implementation of a Climate Adaptation Plan	2	0	Not targeted		
Man	4.1	Building Information	1	1	A comprehensive Operations & Maintenance Manual will be prepared for the hotel operator, including As Constructed drawings and technical sheets for all equipment handed over.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Mech / Elec / Hydraulic / Arch
Man	5.1	Environmental Building Performance	1	0	Not targeted		

CATEGORY	CODE	CREDIT CRITERIA	POINTS AVAILABLE	POINTS TARGETED	COMMENTS	DOCUMENTATION	Responsible Design Stage Discipline(s)
Man	5.2	End of Life Waste Performance	1	0	Not targeted		
Man	6	Metering	-	Complies	The Contractor shall provide accessible metering to monitor all common building energy and water uses and major uses for all energy and water sources provided by the base building. Energy metering to be broken down by floor, as well as any major consumption items, such as HVAC, being metered separately.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Elec / Hydraulic
Man	6.1	Monitoring Systems	1	0	Not targeted		
Man	7	Environmental Management Plan	-	Complies	The Head Contractor shall implement a comprehensive, project–specific Environmental Management Plan (EMP) for the works in accordance with Section 4 of the NSW Environmental Management System Guidelines.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Arch
Man	7.1	Environmental Management System	1	1	The Main Contractor Environmental Management System must be independently audited or should be certified against one of the following standards: AS/NZS ISO 14001, BS 7750 or the European Community's EMAS.	A draft EMP will be a requirement of tenders for Main Contractor. The EMP will then be made project specific prior to construction.	Arch
Man	7.2	High Quality Staff Support	1	1	The Main Contractor will provide physical and mental health support for workers that are part of the project, including through inductions, training, other means to be identified by a suitably qualified and experienced advisor.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Arch
Man	8B	Prescriptive Pathway - Facilities	1	1	The design indicates the bin store with sufficient space for separating recycling streams. The store is on ground level with good proximity to back-of-house, where most waste will be generated. The small kitchen does not justify an onsite organic waste processing unit.	Evidenced in concept design.	Arch

CATEGORY	CODE	CREDIT CRITERIA	POINTS AVAILABLE	POINTS TARGETED	COMMENTS	DOCUMENTATION	Responsible Design Stage Discipline(s)
IEQ	9.1	Ventilation Systems Attributes	1	1	Ventilation systems will be reviewed as part of the commissioning review and will be designed to be easy to maintain and to access.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Mech
IEQ	9.2	Provision of Outdoor Air	2	2	Heat recovery will be used to ensure that plentiful fresh outside air is provided without as much impact on energy consumption. This is also a requirement of the hotel operator's brief.	Evidenced in concept design.	Mech
IEQ	9.3	Exhaust or Elimination of Pollutants	1	1	All exhaust systems will be vented to the outside. Toilet exhausts will run through a heat recovery system used to temper incoming fresh air.	To be included in detailed design to Green Star specifications.	Mech
IEQ	10.1	Internal Noise Levels	1	1	The hotel operator brief already has strict requirements around acoustic performance.	Evidenced in design and hotel operator brief.	Arch
IEQ	10.2	Reverberation	1	0	As above	Evidenced in design and hotel operator brief.	Arch
IEQ	10.3	Acoustic Separation	1	0	As above	Evidenced in design and hotel operator brief.	Arch
IEQ	11	Minimum Lighting Comfort	-	Complies	All lighting to be flicker-free, LED with high frequency ballasts.	To be included in detailed design to Green Star specifications.	Elec
IEQ	11.1	General Illuminance and Glare Reduction	1	1	Lighting standards will be applied. All fittings include shades and shrouds to control direct light. All windows have treatments to assist with glare.	To be included in detailed design to Green Star specifications.	Arch
IEQ	11.2	Surface Illuminance	1	0	Not targeted		
IEQ	11.3	Localised Lighting Control	1	1	All areas and rooms have separate control of lighting.	To be included in detailed design to Green Star specifications.	Elec
IEQ	12	Glare Reduction	-	Complies	All glazing to feature window treatments to control light and glare. External screens are shown on east and west facades to address direct morning and late afternoon summer sun.	Evidenced in design and in the hotel operator brief.	Arch

CATEGORY	CODE	CREDIT CRITERIA	POINTS AVAILABLE	POINTS TARGETED	COMMENTS	DOCUMENTATION	Responsible Design Stage Discipline(s)
IEQ	12.1	Daylight	2	1	Minimum 1 point expected pending calculations in detailed design.	To be included in detailed design to Green Star specifications.	Arch
IEQ	12.2	Views	1	1	1 point expected pending calculations in detailed design.	To be included in detailed design to Green Star specifications.	Arch
IEQ	13.1	Paints, Adhesives, Sealants and Carpets	1	1	Toxic materials will be excluded in the building specification.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	All
IEQ	13.2	Engineered Wood Products	1	1	Toxic materials will be excluded in the building specification.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Arch
IEQ	14.1	Thermal Comfort	1	0	Not targeted		
IEQ	14.2	Advanced Thermal Comfort	1	0	Not targeted		
Ene	15E.0	Conditional Requirement: Reference Building Pathway	-	Complies	The project will target 5.5-star NABERS Energy for Hotels. This is supported by the heat reclaim system HVAC system	To be targeted in detailed design, with calculations and a statement from services engineers confirming the benchmark has been achieved.	Mech
Ene	15E.1	Comparison to a Reference Building Pathway	20	8	A) 5.5-star NABERS Energy will result in over 6 points being awarded through the Green Star – Design & As Built: Greenhouse Gas Emissions Calculator. B) The 35-kilowatt rooftop PV system is expected to produce around 51,000-kilowatt-hours per year, bringing a further 10% improvement on the Green Star minimum benchmark.	To be targeted in detailed design, with calculations and a statement from services engineers confirming the benchmark has been achieved.	Mech / Elec
Ene	16B	Performance Pathway - Reference Building	2	1	The peak demand is expected come on summer afternoons. The heat reclaim HVAC system and west facing PV array are expected to achieve minimum 20% peak energy demand reduction, for 1 point.	To be targeted in detailed design, with calculations and a statement from services engineers confirming the benchmark has been achieved.	Mech / Elec

CATEGORY	CODE	CREDIT CRITERIA	POINTS AVAILABLE	POINTS TARGETED	COMMENTS	DOCUMENTATION	Responsible Design Stage Discipline(s)
Tra	17B.1	Access by Public Transport	3	2	The *Access by Public Transport Calculator* determines these points, which are achieved due to immediate access to buses and CAT bus, and proximity of train station (<800m walk).	Determined by location.	
Tra	17B.2	Reduced Car Parking Provision	1	0	Not targeted. An appropriate level of parking for a hotel is provided.		
Tra	17B.3	Low Emission Vehicle Infrastructure	1	1	Electric vehicle charge points provided on two bays (meeting the Green Star 5% requirement), with allowance in the electrical design for later expansion as required.	To be included in detailed design.	Elec
Tra	17B.4	Active Transport Facilities	1	1	14 bike bays meet Green Star requirements for guests and staff. End-of-trip facilities also meet requirements with changerooms with 2 showers for staff and guests having facilities in their rooms.	Evidenced in concept design.	Arch
Tra	17B.5	Walkable Neighbourhoods	1	1	The 'Walk Score' of 93 for this location exceed the Green Star minimum benchmark of 80.	Determined by location.	
Wat	18B.1	Sanitary Fixture Efficiency	1	1	WELS ratings to be specified: Taps – 6 Star Toilets – 5 Star Showers – 3 Stars (>6.0 but <= 7.5 L/min) Dishwashers – 6 Star Clothes Washing Machines - 5 Star	To be included in detailed design to Green Star specifications.	Hydraulic
Wat	18B.2	Rainwater Reuse	1	0	Not targeted		
Wat	18B.3	Heat Rejection	2	2	Mechanical systems are to be air cooled systems and no water is used for heat rejection.	Evidenced in concept design.	Mech
Wat	18B.4	Landscape Irrigation	1	1	Irrigation by subsoil drip irrigation and moisture sensor controls.	To be included in detailed design to Green Star specifications.	Landscape / Hydraulic

CATEGORY	CODE	CREDIT CRITERIA	POINTS AVAILABLE	POINTS TARGETED	COMMENTS	DOCUMENTATION	Responsible Design Stage Discipline(s)
Wat	18B.5	Fire System Test Water	1	1	The fire system shall not expel water for testing; or, the fire system includes temporary storage for 80% of the routine fire protection system test water and maintenance drain-downs for reuse on-site. If sprinkler systems are installed, each floor shall be fitted with isolation valves or shut-off points for floor-by-floor testing.	To be included in detailed design to Green Star specifications.	Fire / Hydraulic
Mat	19B.1	Concrete	2	1	Specification to require that the absolute quantity of Portland cement has been reduced by 30% measured by mass across all concrete used in the project. This should be achieved through use of waste products such as fly-ash or granulated blast furnace slag to replace some of the Portland cement.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Struct / Arch
Mat	19B.2	Steel	1	0	Not targeted		
Mat	19B.3	Building Reuse	4	0	Not targeted - any original building was demolished prior to current ownership.		
Mat	20.1	Structural and Reinforcing Steel	1	1	Steel is to be sourced only from Responsible Steel Makers (holding ISO 14001 accreditation OR is a member of the World Steel Association's (WSA) Climate Action Programme (CAP))	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Struct / Arch
Mat	20.2	Timber	1	1	All timber, including formwork, is to be sourced from sustainably managed sourced and be either PEFC or FSC accredited.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Struct / Arch
Mat	20.3	Permanent Formwork, Pipes, Flooring, Blinds and Cables	1	1	All PVC products used in the project (as common uses of PVC) will meet '*Best Practice Guidelines for PVC in the Built Environment*' requirement.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Elec / Hydraulic / Arch
Mat	21.1	Product Transparency and Sustainability	3	0	Not targeted		

CATEGORY	CODE	CREDIT CRITERIA	POINTS AVAILABLE	POINTS TARGETED	COMMENTS	DOCUMENTATION	Responsible Design Stage Discipline(s)
Mat	22B	Percentage Benchmark	1	1	The Main Contractor will be required to ensure that 90% of the waste generated during construction has been diverted from landfill. Reporting must be available on request.	To be required in tender docs (building specification, contractually binding) to Green Star standards.	Arch / Main Contractor
Eco	23	Endangered, Threatened or Vulnerable Species	-	Complies	There are no habitats that may have been home to 'critically endangered, endangered, or vulnerable species or ecological communities'.	Determined by site condition at purchase.	
Eco	23.1	Ecological Value	3	0	There is no net change in ecological value of the site.		
Eco	24	Conditional Requirement	-	Complies	At the date of site purchase the project site did not include old growth forest or wetland of 'High National Importance', or did not impact on 'Matters of National Significance'.	Determined by site location, history and condition at purchase.	
Eco	24.1	Reuse of Land	1	1	The site was previously developed and was vacant at purchase.	Determined by site location, history and condition at purchase.	
Eco	24.2	Contamination and Hazardous Materials	1	0	Not targeted (no HazMat's to be remediated)		
Eco	25	Heat Island Effect Reduction	1	1	As well as retaining or replacing existing trees, the landscape design includes extensive on-building planting. Hardstand is generally well shaded. Roofs will be light coloured. Roofing materials, including shading structures, having the following: For roof pitched <15°– a three year SRI >64; or For roof pitched >15°– a three year SRI >34.	Landscape items are evidenced in the concept design. Roof colour to set in detailed design.	Arch / Landscape
Emi	26.1	Reduced Peak Discharge	1	1	100% stormwater is infiltrated onsite.	To be targeted in detailed design, with calculations and a statement from services engineers confirming the benchmark has been achieved.	Hydraulic

CATEGORY	CODE	CREDIT CRITERIA	POINTS AVAILABLE	POINTS TARGETED	COMMENTS	DOCUMENTATION	Responsible Design Stage Discipline(s)
Emi	26.2	Reduced Pollution Targets	1	1	100% stormwater is infiltrated onsite.	To be targeted in detailed design, with calculations and a statement from services engineers confirming the benchmark has been achieved.	Hydraulic
Emi	27	Light Pollution to Neighbouring Bodies	-	Complies	All outdoor lighting on the project is to comply with AS 4282: 1997 Control of the Obtrusive Effects of Outdoor Lighting. This applies to all inhabited boundaries, apart from boundaries with roads.	To be included in detailed design to Green Star specifications.	Elec / Arch
Emi	27.1	Light Pollution to Night Sky	1	1	All outdoor lighting on the project will be designed to reduce the spill of external light to the night sky.	To be included in detailed design to Green Star specifications.	Elec
Emi	28	Legionella Impacts from Cooling Systems	1	1	Mechanical systems are to be air cooled systems and no water is used for heat rejection.	Evidenced in concept design.	Mech
Emi	29	Refrigerant Impacts	1	0	Not targeted		
Inn	30A	Innovative Technology or Process	10 *	1	The project is targeting INN- 30A - ONSITE RENEWABLE ENERGY, with the rooftop PV system providing at least 5% of annual energy to the development.	To be targeted in detailed design, with calculations and a statement from services engineers confirming the benchmark has been achieved.	Elec
Inn	30B	Market Transformation	10 *	0	Not targeted		
Inn	30C	Improving on Green Star Benchmarks	10 *	0	Not targeted		
Inn	30D	Innovation Challenge	10 *	0	Not targeted		
Inn	30E	Global Sustainability	10 *	0	Not targeted		
TOTALS			91	50			